NOTE

This Microfiche meets the quality requirements of the American National Standard for Microfiche of Documents (ANSI PH5.9-1975). However, because of imperfections in the document from which it was made, it contains images that are illegible or difficult to read. The source document for this microfiche is the best copy that could be obtained prior to filming.

CIS

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1990

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE

COMMITTEE ON APPROPRIATIONS

HOUSE OF REPRESENTATIVES

ONE HUNDRED FIRST CONGRESS

FIRST SESSION

SUBCOMMITTEE ON THE DEPARTMENT OF DEFENSE

JOHN P. MURTHA, Pennsylvania, *Chairman*

NORMAN D. DICKS, Washington
CHARLES WILSON, Texas
W. G. (BILL) HEFNER, North Carolina
LES AuCOIN, Oregon
MARTIN OLAV SABO, Minnesota
JULIAN C. DIXON, California

JOSEPH M. McDADE, Pennsylvania
C. W. BILL YOUNG, Florida
CLARENCE E. MILLER, Ohio
BOB LIVINGSTON, Louisiana

DONALD E. RICHBOURG, J. DAVID WILLSON, JOHN G. PLASHAL, ROBERT V. DAVIS, SANDRA A. GILBERT, DAVID F. KILIAN, ELIZABETH A. PHILLIPS, RICHARD E. EFFORD, DELACROIX DAVIS III, ALICIA JONES, and JULIE PACQUING, *Staff Assistants;* MARCIA L. MATTS, MARY E. GAROFALO, and CYNTHIA A. WRIGHT, *Administrative Aides*

PART 1

	Page
Secretary and Chief of Staff of the Army	**1**
Acting Secretary and Chief of Staff of the Air Force	**211**
Secretary of the Navy, Chief of Naval Operations, and Commandant of the Marine Corps	**389**

Printed for the use of the Committee on Appropriations

U.S. GOVERNMENT PRINTING OFFICE
20-890 O WASHINGTON : 1989

H181-1

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

COMMITTEE ON APPROPRIATIONS

JAMIE L. WHITTEN, Mississippi, *Chairman*

WILLIAM H. NATCHER, Kentucky
NEAL SMITH, Iowa
SIDNEY R. YATES, Illinois
DAVID R. OBEY, Wisconsin
EDWARD R. ROYBAL, California
LOUIS STOKES, Ohio
TOM BEVILL, Alabama
BILL ALEXANDER, Arkansas
JOHN P. MURTHA, Pennsylvania
BOB TRAXLER, Michigan
JOSEPH D. EARLY, Massachusetts
CHARLES WILSON, Texas
LINDY (MRS. HALE) BOGGS, Louisiana
NORMAN D. DICKS, Washington
MATTHEW F. McHUGH, New York
WILLIAM LEHMAN, Florida
MARTIN OLAV SABO, Minnesota
JULIAN C. DIXON, California
VIC FAZIO, California
W. G. (BILL) HEFNER, North Carolina
LES AuCOIN, Oregon
DANIEL K. AKAKA, Hawaii
WES WATKINS, Oklahoma
WILLIAM H. GRAY III, Pennsylvania
BERNARD J. DWYER, New Jersey
STENY H. HOYER, Maryland
BOB CARR, Michigan
ROBERT J. MRAZEK, New York
RICHARD J. DURBIN, Illinois
RONALD D. COLEMAN, Texas
ALAN B. MOLLOHAN, West Virginia
LINDSAY THOMAS, Georgia
CHESTER G. ATKINS, Massachusetts
JIM CHAPMAN, Texas

SILVIO O. CONTE, Massachusetts
JOSEPH M. McDADE, Pennsylvania
JOHN T. MYERS, Indiana
CLARENCE E. MILLER, Ohio
LAWRENCE COUGHLIN, Pennsylvania
C. W. BILL YOUNG, Florida
RALPH REGULA, Ohio
VIRGINIA SMITH, Nebraska
CARL D. PURSELL, Michigan
MICKEY EDWARDS, Oklahoma
BOB LIVINGSTON, Louisiana
BILL GREEN, New York
JERRY LEWIS, California
JOHN EDWARD PORTER, Illinois
HAROLD ROGERS, Kentucky
JOE SKEEN, New Mexico
FRANK R. WOLF, Virginia
BILL LOWERY, California
VIN WEBER, Minnesota
TOM DeLAY, Texas
JIM KOLBE, Arizona
DEAN A. GALLO, New Jersey

Frederick G. Mohrman, *Clerk and Staff Director*

DEPARTMENT OF DEFENSE APPROPRIATIONS FOR 1990

THURSDAY, MARCH 2, 1989.

FISCAL YEAR 1990 ARMY POSTURE

WITNESSES

HON. JOHN O. MARSH, JR., SECRETARY OF THE ARMY

GEN. CARL E. VUONO, CHIEF OF STAFF, U.S. ARMY

LT. GEN. DONALD S. PIHL, MILITARY DEPUTY, OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY (RESEARCH, DEVELOPMENT, AND ACQUISITION)

MAJ. GEN. MERLE FREITAG, DIRECTOR OF THE ARMY BUDGET

INTRODUCTION

Mr. MURTHA. The Committee will come to order.

Today, the Committee considers the budget estimates of the Department of the Army for fiscal year 1990, as submitted by former President Reagan. The Army budget considered by this Committee is $78,144,700,000, an increase of about $3 billion or 4.1 percent over the amount appropriated for fiscal year 1989.

The principal witnesses are the Honorable John O. Marsh, Secretary of the Army, and General Carl E. Vuono, Chief of Staff of the Army.

I would like to announce that we have an all time record holder as a principal witness. Secretary Marsh has served longer as Secretary of the Army than any individual in the history of this country. He has not only served long, he has served well. We think you have been an outstanding Secretary of the Army, the best we have ever seen. We appreciate your service to the country.

What I have asked the other Service Secretaries and Chiefs to talk about is the possibility of cuts. I should say probability of cuts. Mr. Sabo, who is on the Budget Committee, outlined yesterday what he sees are the potential and possible reductions that will be necessary. The chair now recognizes the Chairman of the full committee, Mr. Whitten.

REMARKS OF MR. WHITTEN

Mr. WHITTEN. I can improve on that. He has served better than any other Secretary of the Army.

It is a real pleasure to be here. Jack Marsh and I served on this committee a long time ago. In the history of the country I don't believe we ever had a better Secretary of the Army. Certainly you are now judged by not how long you have served, but by how well you have served. Nobody ever questioned his integrity or his worthwhileness. I made a number of trips through the years and have observed the Army in the field. The Army is still basically that force which takes over and holds the ground gained when the others can't do it. I want to say farewell to you, Mr. Secretary, and to say that the effect of your service to the country will last a long time.

I have a picture here that I want to present to the Chairman of the Subcommittee. When I was at the Fulda Gap five years ago I set a record for the shortest speech a Congressman ever made. They told me to say execute, which I did, and all hell broke loose when the troops went on alert. But this picture of Jack Murtha at the Fulda Gap dressed up in his battle uniform is what brought the Russians to the table. The only other thing that could hang the Russians up would be to send them a copy of the debate on the Defense Authorization bill. That would tie them up for years to come.

I repeat, Mr. Secretary, we are proud of you and the service you have rendered. You have done a great job and we look forward to being associated with you in the years to come.

Secretary MARSH. Thank you, Mr. Chairman.

Mr. MURTHA. We were at Yellowstone National Park and we had with us a young Colonel who does an outstanding job taking care of us and getting us there on time. I told him I wanted to try out the Army's cold weather gear. It was 20 degrees that day and the National Park Service had these heavy parkas to wear. The Army brought out its Gortex gear. I only wore a light sweater under it. We were riding snow mobiles, and I had to change to the Park Service gear. That Gortex doesn't work in cold weather. The stuff you gave me at Fulda Gap works. I hope you don't have anybody in the Arctic in that cold weather equipment.

Several of us had to desert. Lt. Colonel Horner stuck with the Gortex all the way. He said, I am not cold, but this hands were frozen and his face was as white as a sheet. You should look at that cold weather gear because it didn't work in Yellowstone Park when we were riding snow mobiles.

Let me get back to my serious question before your statement. We hope that you will address the probability of cuts. I started to say that Mr. Sabo who is on the Budget Committee, pointed out to this committee where he thought they were now. He disagrees with the revenue estimates of the President's budget because he does not believe in $5 billion in asset sales and $5 billion for medicare. He doesn't agree with that. He thinks that $13 billion or $14 billion will have to be raised.

He still sees the potential of a $13 billion outlay cut from the President's budget for Defense. Now that is significant and you can imagine what that would do to the budget. But as you go through your statement, we would appreciate your addressing where we have been, where we are now, and what would happen if we took those kinds of cuts.

We welcome you to the committee, Mr. Secretary. Your entire statement will appear in the record, as will General Vuono's statement. If you will summarize for us, we will then go to the questions.

Mr. **McDade**. Mr. Chairman, I want to welcome the witnesses to the table, all of them have done a superb job over the years for the military, but I want to also take note of our former colleague, Jack Marsh, who has been setting records there in terms of length of distinguished tenure as Secretary of the Army. A little over eight years isn't it, Mr. Secretary?

Secretary **Marsh**. Yes.

Mr. **McDade**. This is your ninth experience and probably your last in front of the committee and I know the committee would want to express our deep appreciation to you for the service you have given to your country and for the job you have done as Secretary of the Army. We are very grateful for your service, Jack.

Secretary **Marsh**. I appreciate that.

Mr. **Murtha**. Mr. Secretary.

SUMMARY STATEMENT OF SECRETARY MARSH

Secretary **Marsh**. Thank you, Mr. Chairman, Mr. Whitten; I certainly appreciate your remarks. I thank the entire Appropriations Committee and the subcommittee, you and Mr. Murtha for the help and support that you have given me. I did not expect that I would be here testifying today. I am simply in a hold-over status. I had resigned some time ago and am in a standby status pending the appointment of my successor as Secretary of the Army.

So, consequently, I am somewhat circumscribed in what I can say about the future of the Army in 1989. I would also like to point out that both the Chief and I have some difficulty in addressing certain budget questions because of impacts of the amendment of President Bush, which is still ongoing, under consideration in the department and does affect some of the numbers in a significant way that are before the committee.

I would like to introduce to you, because one of them is new, the three military associates, General Vuono, our distinguished Chief of Staff, General Pihl, who is our Military Deputy for Research and Development, and our new Budget Officer, General Freitag.

I would be remiss having been through a number of transitions in our government not to mention the continued support and assistance and the respect for civil authority that I have found from the military, who, even though I am leaving, have been extremely loyal and helpful, which I think speaks to the traditions of the continuity and the recognition of their role in our constitutional republic, which incidentally is marked today by the 200th anniversary of the convening of the first Congress of the United States in New York City.

It is appropriate that the committee be about its work and busy at a time when we reflect on their contributions.

I would like to very quickly go through sort of an overview that I would say reflects in large measure where we have come and what we have done in this decade, because I think the committee will be interested in it and it reflects your interest.

Our request this year is slightly in excess of $80 billion. We generally put into the reserve components approximately 12 percent of our assets. As you are aware, we made a decision in the early

1980's that we would hold to a fixed end strength. We have been able to do that with one slight decrement of 8,600 end strength taken a year ago that neither the Chief nor I agreed with but that was the decision. We sought to implement it. We have tried to give the country a highly effective, well trained ready force in that 781,000, and reserve components which match that end strength.

I would say to you that the budget that you are receiving from the Army, before it is amended, has a negative real growth in it. I would also say to you that in the decrement that we will be required to take in the amendments that are being submitted to the budget now the Army has raised a strong question as to what is called the just apportionment of shares in that budget because, inasmuch as we have a negative real growth, we think that should impact on our current situation.

ARMY OF TODAY

If you were to look at the Army in 1980 as compared to 1989, I think you would find a very significantly changed Army. In the Army of the 1970's, which led to then Chief of Staff Meyer's comments about its hollowness, you had an Army with a shortage of 17,000 personnel, 8,000 of whom were non-commissioned officers. We had zero squads in mech divisions, 56 scout platoons, 121 mortar platoons. You had 95 tank crews at zero, 91 artillery crews at zero, 160 aircraft with zero crews.

This all impacted on the situation that we addressed in the 1980's. We were 125,000 soldiers short in the guard and the reserve. Today you can say there is one soldier in the active force for every one soldier in the guard and reserve. There is about 6,000 difference in the end strength. The Army is about 772,000—the guard and reserve combined are at about 778,000.

QUALITY OF ARMY PERSONNEL

One of the most significant things I think is the change, and I would say to you that the one area that concerned me the most as the Secretary of the Army when I took this post was a mandate by the Congress that related to the high school graduate content and the Category IV content of the Army.

At that time the high school graduate content of the Army was 54 percent, the Category IV content was 52 percent, the Congress said you have to bring high school graduates above 66 and must drop in a two-year period to less than 20 percent Category IV's. Today we recruit about 4 percent Category IV's, recruiting runs from 91 to 93 percent on high school graduates. That is also reflected by significant gains in the same two areas in the reserve components.

Let me give you an example that I observed of how that impacts. I was at Fort Bragg several months ago and I noted that the old stockade was no longer in use. I said, where did you build the new stockade? They said, we didn't build a new stockade, we signed a Memorandum of Agreement with Fayetteville and they house any prisoners that we have. Remember now you are dealing with a Post with 41,000–42,000 soldiers.

I said, how many soldiers do you now have incarcerated in the Fayetteville jail. They said, 11—several of those were for very minor offenses. That reflects on what is happening in the Army today on property crimes. Our AWOL records are lower than at any time in history and we know that based on tests that where we are using I to IIIAs, that their capability in tank kills is a seven to one ratio, they will kill seven tanks for one.

MODERNIZATION

You cannot ignore and I think there is a tendency to ignore the enormous equipment fill that has occurred in the Army. I mention these things because this equipment fill, the capability of soldiers have brought us to the period in world affairs where we find ourselves and I think have been a significant influence on the number of things that have happened in the international arena that relates to our relationships in a very favorable way with the Soviet Union.

Today we have bought and paid for and have mostly in the force now 7,000 M1 Abrams tanks which we didn't have. We have 1,003 UH-60 Black Hawk helicopters bought and paid for.

We have 441 Apache helicopters, almost 5,500 Bradleys. We bought an additional 5,000 Armored Personnel Carriers. We have bought and paid for 460 MLRS'. In addition to the Bradleys, the M1s and the APCs, we have purchased over 8,000 heavy trucks. We have bought 46,000 HMMWVs, 61,000 non-tactical vehicles and we have converted and upgraded the M60 tanks, over 3,000 tanks to the M60A3 version. These are very fine pieces of equipment.

The result of this is the United States Army's combat capabilities have improved by 75 percent which we think is a significant figure.

You should be aware because you supported and indicated a strong interest in the competition, of the dollars we have available to compete, we have increased from 41 to 61 percent of our contracts. We have doubled the size of our SOF forces while our end strength has been constant, 772,000.

FORCE STRUCTURE

We have increased within that end strength the number of combat battalions by 30 battalions and in the reserve components we have had an increase of over 40 battalions.

In 1980 there were 10 Army divisions of the 16 that were combat ready. Today of the 18 divisions, 17 are combat ready and one of those is building. There are problems in the field of backlog, Backlog of Maintenance and Repair, or BMAR. Depot maintenance is not funded at the level we want, but you will find an enormous increase in the communications of the Army, SINCGARS is being fielded in a limited number of units in Panama and Korea and the MSE, which puts the mobile telephone on the battlefield, is being now introduced to the III Corps at Fort Hood, Texas. Other areas that we think contribute significantly to the kind of force we have are our 96 child development centers that have been constructed, renovated or expanded since 1980, 10 chapels, 65 physical fitness centers, 270 hardstands that got the soldiers in Europe out of the mud who repair vehicles, 67 new dining facilities, and 97,000 barrack spaces as well as 3,200 family housing units.

TRAINING

The training emphasis, and General Vuono has been a great leader in the Army in emphasizing training, is reflected in the training centers. We see also the new dimension of the guard and reserve being deployed in excess of 50,000 soldiers a year overseas. I recall in 1981 when this committee and others were talking about—the Canadian Cup was cited as an example. We had never won the Canadian Cup. It is a trophy that is given once every two years. We won the Canadian Cup last time in competition. We had never won the Boeselager Cup, the cup for Army reconnaissance. We have won it two times in a row. For the last two competitions we were international helicopter champions.

War reserve assets, 30 percent up in munitions, 88 percent up in secondary items and over 208 percent up in major items. The secondary items and the things that are stored, we had very significant interest—POMCUS is up, nearly six divisions are filled as part of that plan.

BUDGET CUTS

That brings me to your question, Mr. Chairman. The concern that I have, which I know the Chief of Staff has, is that we are going to forfeit the enormous gains that have contributed to our national security and to our national strategy by unwise, devastating cuts, and I plead with the committee to assist us in making a case for why these cuts should be very carefully considered.

You have mentioned, Mr. Chairman, two figures, one the $292 billion figure as the top line and you have also mentioned the figure of $285 billion. I am going to ask the Chief to make any additions to what I say. I think he can probably address some of the strategic concerns better than I, probably some of the things that relate to force structure better than I, but based on the assumption that we will follow a fair share approach apportionment of reduction among all the services, somewhat in accordance with the share that they represent of the total defense bill—on that basis I would say to you that it will have profound strategic impact. It will have an enormous impact on the quality of life of our soldiers. It is going to raise some very serious questions on being able to maintain an all voluntary force.

With the $292 billion you are going to have a RIF, we believe. We try to apportion these over the very significant areas of the four pillars. We think you will probably have to RIF 6,000 officers, 6,500 NCOs. I can tell you from very modest, careful speaking, modest reductions, you get enormous retention turbulence. You are going to impact in a very significant way on promotion opportunities and you are going to probably hurt retention of the high quality soldier that you want to keep.

FORCE STRUCTURE

In force structure, you will probably, if you apportion this out have to take 45,000 from the active component, 30,000 from the reserve component and 12,000 civilians.

I will tell the committee frankly I have opposed, do oppose, and will continue to oppose the reduction of force structure of the United States Army. I have resigned as Secretary of the Army. I am here in a interim holdover status. That is my view. I have expressed it, I expressed it there, I will continue to express it because I think the Army in force structure and size is perilously low, based on the risk that we are confronted with. That is with the $292 billion.

READINESS

I have not spoken to readiness. General Vuono can speak to readiness better than I, but I can tell you at $292 billion, you are going to move in and kill significant weapons systems. It is going to happen. You would probably have to kill the AH-64 or the Black Hawk helicopters. You will probably have to mortgage or kill the LHX helicopter.

You are going to have to cut back on the modernized M1A2 tank and the Line of Sight-Forward-Heavy air defense system will be in harm's way.

You will decrease significantly your buy for the Bradley, for SINCGARS and for the Black Hawk, and you will stretch out Patriot and Mobile Subscriber Equipment, MSE. We are now at $292 billion. If you go to $285 billion, the devastation will be greater.

IMPACT OF BUDGET REDUCTIONS

Again, General Vuono can speak better than I to the strategic impacts and I invite him to speak on any area. If you move into force structure of the four pillars, you are looking at a reduction of 70,000, 10 percent roughly of your Army, 35,000 out of your reserve components and 30,000 civilians. You would probably have to then begin to think in terms of reducing two divisions in CONUS, which raised very serious questions about your forward deployed forces and the maintenance of forces that are in support of our alliances and you would probably have to think very seriously in terms of closing two of the major active posts in the United States.

You would probably drop two of your reserve component divisions and reduce them to one brigade each and probably in the scenario of $292 billion, you would probably have to drop one to brigade.

You are beginning to look at a OPTEMPO figure of 700. Our present budget we are trying to hold at 800. 850 would probably be better, but we think 800 is adequate. We think you will probably have to drop down to the 700 figure. Your kills would be in the same area, the Apache attack helicopter, LHX, your modernized tank and ADATS with the same reductions and SINCGARS, Bradley and the UH-60 Black Hawk and the same impacts on Patriot and MSE. That is a broad overview.

That is not a cheerful picture but I would submit to you that we should not look at the Army as an entity in itself, but rather as an instrument of national policy.

Weapons systems are not acquired in order to enhance the careers of individuals, officers and soldiers, they are acquired as a part of the national policy. The price we pay in the long run will be the Army as a very significant force in our national strategy and what you are beginning to jeopardize is the security of the United States.

Our presence in Europe is a part of the first line of defense of this country. In an age in which missiles and supersonic aircraft are measured in terms of hours or even minutes we find that the capitals of Europe are closer to Washington than Richmond was to Washington 20 years ago.

So with that overview, I welcome consideration of the committee and your questions. I will try to answer them as best I can. It may be because of the direction of your first question on impact that you may want General Vuono to expand on what I just said.

[CLERK'S NOTE.—The Joint Posture Statement by the Secretary of the Army and the Chief of Staff of the Army is printed at the end of this hearing. See page 116. The statement of Secretary Marsh follows:]

STATEMENT OF MR. JOHN O. MARSH
SECRETARY OF THE ARMY

Mr. Chairman and Members of the Committee:

It is a pleasure for me to appear before the Committee today to report on the condition of the United States Army in 1989.

As we continue the national observance of the Bicentennial of the United States Constitution and of the Republic which that remarkable document established, the Army is proud that every one of its members, across the span of 200 years, has taken an oath to defend the Constitution, as has each of its Commanders-in-Chief, beginning with George Washington, when inaugurated as President of the United States.

The Army also can point with pride to a history antedating the formation of the Union, as it traces its lineage to the troops raised by authority of the Continental Congress.

On March 4th, we mark the 200th anniversary of the effective date of the Constitution and the convening of the 1st Congress -- although the two houses did not achieve quorums until the first week of April.

On April 30th, we will observe the Bicentennial of the first Presidential Inauguration. I would also like to point out that of the 40 men who signed the Constitution, 23 had served in the American Revolution, all of them in the Army. They fought the war, helped to draft the Constitution, formed the new government and then served as leaders in the new American government.

I am very proud to inform you that today, the Army in the field, formed with the support of the American public, the Congress and particularly this Committee, is trained, and ready for today and tomorrow.

Today's soldiers are the highest quality, by any measure, of any who have ever served. They are highly motivated, well equipped, well led, and well trained. They represent their country well, and through their dedication, determination, and professional competence create the conditions of deterrence which preserve our national security.

Since 1980 we have established a strong, positive momentum in building and maintaining the capabilities of all the Armed Forces. But even as we have moved forward in enhancing our ability to deter war, our potential adversaries have made significant improvements of their own. These advances continue, although their proposed cuts in personnel and equipment are featured in current news.

Our immediate objective is to maintain the momentum established over the past eight years. We continue to focus on four key areas to determine the course of the Army. These areas are:

- Challenges.
- Vision.
- Strategic Role.
- Army Program.

This challenge will be formidable. Security for our freedom and that of our Allies is dependent on our willingness to lead in its defense.

The FY 1989 appropriated budget authority of $78.0 billion was more than $68.5 million below our request. Currently, we are not keeping pace with inflation and we have been forced to defer many programs to later years. Stretching of Army programs will be exacerbated by projected reductions over the next five years.

As new budget submissions are reviewed, I urge you to remember that our budget is a carefully crafted package representative of Army requirements rather than a series of individual programs and lines. The Army program outlined today is designed to counter the threat to the national security of the United States.

We must preserve the positive gains made during the last eight years and expand our sights to counter advances made by our adversaries.

CHALLENGES

The greatest single Challenge to our national security and that of our Allies continues to be the military power of the Soviet Union.

The Soviets have more than 200 ground force divisions with 1,900,000 soldiers; they field over 53,000 tanks, over 60,000 armored personnel carriers and infantry fighting vehicles, 1,600 surface-to-surface missiles -- far more than any other nation on earth; far more than could possibly be needed for defense.

The announced implementation of a 500,000 man reduction in Soviet forces along with cuts in divisions, tanks, and artillery is a welcome step. These announced reductions, coupled with Soviet President Gorbachev's domestic agenda, suggest that there is pressure to reduce the near-term commitment to defense programs that consume 15 to 17 percent of the Soviet gross national product.

Even with these reductions, the Warsaw Pact is still numerically superior in tanks, artillery, armored personnel carriers, aircraft and troop strength. Since the 1960's, the Warsaw Pact has invested in an unprecedented effort to increase in size, far beyond requirements.

This investment has led to significant quantitative advantage over NATO in both conventional and nuclear arms. For years NATO has relied on the quality of its equipment to partially offset the Warsaw Pact's quantitative superiority. Now, however, some Soviet and Warsaw Pact ground force equipment meets or exceeds NATO equipment in sophistication. We need to regain the qualitative advantage. Of interest is the fact that even if the Soviets make their announced force reductions, equipment assembly lines will continue to produce newer equipment at the same rate and modernization will continue.

We salute President Gorbachev's force reduction statements and promise of economic reform. But we must proceed with caution in light of these unprecedented developments. Mr. Gorbachev's economic restructuring could, if successful, provide a more modern industrial base and the capital to continue to strengthen his conventional forces.

The Intermediate Nuclear Forces (INF) Treaty places even more importance on the modernization of conventional forces. The Soviet Union and Warsaw Pact continue to maintain a substantial force advantage in conventional arms even if the recently announced force reductions are carried out.

Soviet fire support modernization furnishes almost 80 percent of the combat power Soviet doctrine says will be needed to achieve a breakthrough attack. Additionally, the Soviets have fielded new fire support systems five times faster than the United States.

With INF, conventional forces carry an increased share of deterrence. For our conventional forces to be effective, we must continue our modernization of short range nuclear forces, follow-on to Lance (FOTL) and the Army Tactical Missile System (ATACMS).

The Soviets have expanded aggressively around the world. Their presence in the Third World permits them to threaten directly the vital interests of the United States.

In many cases, Soviet expansion has been aided by technical assistance and training of military forces in the Third World. Many new emerging nations now possess sizable stockpiles of modern weapons, munitions, vehicles and communications equipment. These emerging nations do not threaten directly the United States but can influence regional balance.

Today, Libya is one of the most heavily armed nations in the world. Libya may also possess the largest chemical weapons facility in the Third World when the present site under construction is operational. These facts, coupled with Libya's linkage to terrorism, represents a significant threat to Western interests in Africa.

In this hemisphere, the Soviets spent $5.5 billion in economic and military aid in 1988 to maintain the communist government of Cuba. Cuba provides the Soviets a strategic position astride important sea lines of communication through which 45 percent of all United States imports flow during peacetime, and through which 60 percent of supplies and reinforcements for NATO would flow in the event of war in Europe.

Furthermore, Cuba serves as a base through which Soviet supplies destined for the Marxist-controlled government in Nicaragua are funneled. With this assistance, the Sandinistas have built armed forces larger than those of all their neighbors combined. Although their own forces presently exceed that necessary for legitimate self-defense, leaders in Managua plan to continue increasing the size of their forces.

In the Far East, Vietnam now has the world's third largest army, with 1.1 million men in the army and another 1 million in the militia. In contrast, Thailand, Vietnam's nearest noncommunist neighbor is outnumbered approximately 7:1 in men and 4:1 in tanks and armored vehicles.

The threat to United States interests brought about by the Soviet Union and its allies continues to grow. Additionally, socio-economic conditions in the Third World are leading to terrorism, increased violence and instability. The Army must be prepared to meet the challenges posed by a multifaceted threat and must remain flexible to meet a wide range of conflicts anywhere in the world.

The challenges to our Nation's security run the length of the spectrum of conflict. This spectrum ranges from those threats, such as that posed by strategic nuclear war, which are very risky and costly, but fortunately improbable; to those, such as terrorism, which are much less risky, less costly, and therefore, much more likely.

The Army must be prepared to act successfully and appropriately anywhere along this continuum.

VISION

For the last few years the Army Posture Statements have discussed the Army's vision, that is the ability to look into the future. The Army must continually apply lessons of the past to make the Army better in the future.

Let us for the moment, take another look at lessons of the past, on a larger scale, to an event truly American and one that has helped shape the world.

We have previously mentioned the Bicentennial of the Constitution and the 23 soldiers/statesmen who signed this most valuable document. Who could have foreseen the impact on our Nation's history by the adoption of the American Constitution? When George Washington swore to support and defend the Constitution, no one knew that this was the beginning of the oldest democratic republic in the world.

When we focus on this most important document, it becomes increasingly clear that the Constitution is indeed a visionary document. Vision relates to a need. Needs produce vision. There is a direct relationship between vision and planning; planning and execution; and between attempting and achieving. Vision is goal-oriented. It relates to the future. Something we want to be, something we want to achieve, something we want for the Army.

The Constitution is a statement of goals of the American people. It is a goal-oriented document. The oath that Washington took 200 years ago this April, to support and defend the Constitution is the same oath taken by every soldier, sailor, airman, and marine for the last 200 years. Providing for the common defense is a necessity for a more perfect union and it is a necessity if we are going to have a sound general welfare. A strong national defense is vital to our liberties.

As we look ahead, there is no substitute for quality and no alternative to readiness. Guided by doctrine, modernization initiatives, and force structure limitations, the Army will remain flexible to meet evolving United States strategic requirements.

Toward this end, the Army will continue to rely on the Navy and Air Force to transport units anywhere in the world. The Army today and tomorrow, as evidenced by our forefather's vision, will continue to be a symbol of American will.

STRATEGIC ROLE

The Army is a key component in the execution of the United States national strategy. Our objectives are to deter conflict and defeat aggression; to assist our Allies against similar forces, to include terrorism; to ensure our access to critical resources; defend democracy, human rights and freedom throughout the world.

Fundamental to the execution of our national strategy is that the Army remains a flexible nuclear deterrent, supported by the ongoing efforts of the INF and the strategic defense initiative; forward deployed forces; a strong reserve component; and efficient command and control.

The Army is a strategic force. The Army is the only force that can end major conflicts. We must be prepared to respond when and where necessary to decisively engage and defeat the enemy, anywhere and at anytime.

In light of current negotiated arms agreements, which reduces intermediate range tactical nuclear weapons, the focus on strong conventional forces is increasingly more important. Heretofore, tactical nuclear weapons have always been one of our deterrents. Now strong conventional forces are increasingly more important to prevent early nuclear use.

Each Service has only a portion of the ingredients necessary for sound national military strategy. The Army's AirLand Battle doctrine recognizes the need for totally integrated combat power and the Army is prepared to provide our Nation with its special capabilities to deter war, fight and control wars that do start and terminate wars in a manner favorable to our national strategy.

General Vuono, the Army Chief of Staff, will expand our discussion of the Army as a strategic force in his statement.

Based on the threat, our preparedness to counter the threat and the Army's role as a strategic force, let us look at what the Army has done over the past decade to achieve our goals.

ARMY PROGRAM

Although our budget guidance is incomplete to date, nonetheless, we know by the President's recent State of the Union Address that growth in our budget after inflation is nonexistent. Our concern is that revised budget guidance will not even keep pace with inflation and in fact create a negative growth situation.

There are several major areas of Army Program that I would like to highlight. The successes we have enjoyed in these areas indicate that earlier decisions in charting their course were correct ones. Increasingly, constrained resource allocations will make future successes far less dramatic.

PEOPLE

The Army has strongly supported numerous education assistance programs over the last eight years. Examples include the Montgomery GI Bill, Army College Fund, and the Veterans Educational Assistance Program. Programs such as these have contributed immeasurably to the quality of the enlisted force.

The number of high school diploma graduates has increased from 54 percent in 1980 to over 90 percent in 1988. Attrition during first-term enlistment has decreased over 10 percent from FY 80 to FY 88. Mental Category I-IIIA soldiers increased from 26.1 percent in FY 80 to 65.7 percent in FY 88. Category IV soldiers, lowest allowable test category of soldiers, decreased from 57 percent to 4 percent during the same time period.

The number of women in the Army has increased over 14,000. Minority officer and warrant officer strength have increased approximately 3 percent.

The quality of life for soldiers and their families has improved dramatically. The number of family quarters, child development centers, chapels and commissaries have increased. Of note are the difficult initiatives taken to provide more quarters for families. Almost 12,000 units have been constructed worldwide. For the first time, the United States constructed family housing in Europe. Approximately 12,500 units have been leased in CONUS and OCONUS.

READINESS

The National Training Center (NTC) at Fort Irwin, California is the premier training center in the world for mechanized forces. The initial capabilities have expanded to include true combined arms training of maneuver with fire and air support. The Opposing Forces at the NTC are aggressive and relentless, further intensifying the training impact.

Establishment of the NTC has been closely followed by development of the Joint Readiness Training Center (JRTC) at Fort Chaffee, Arkansas. JRTC is the first training center in the world for non-mechanized forces.

A series of cost savings measures promise to continue to save the Army millions of dollars per year. The Army has adopted the Air Force military pay system which will save over $200 million over the life of the system. By implementing the cash management initiatives of the President's Reform 88 Program, the Army has saved $66 million. The Army Finance and Accounting Center developed an in-house fund control system that saves the Army $1 million a year. The Army has reduced the number of accounting systems from 54 systems in FY 1983 to 11 in FY 1989.

The Army is supporting the Department of State, Drug Enforcement Administration, U.S. Customs Service, U.S. Border Patrol, local and state law enforcement agencies in the war on drugs. Specifically, our support has included rotary and fixed wing aircraft with night vision equipment, communications support, remote ground surveillance radars, wheeled vehicles and various weapons. Much of this support has been provided by the National Guard.

MODERNIZATION

Our aviation modernization program has become a lead program in the execution of our Air Land Battle Doctrine. We have fielded the world's first day/night all-weather attack helicopter in the Apache. We have fielded 603 aircraft through FY 1988.

We have continued to field a modern utility helicopter in the Black Hawk to replace the aged Huey fleet. The Army has fielded 913 through FY 1988.

Development of the Army's new Light Helicopter, the LHX, is underway which will give us vast improvement in light helicopter performance.

The Army has developed a high proficiency in helicopters. It won the International Helicopter Championship in 1981 and 1986.

Improved night vision devices continue to be fielded to enhance warfighting capabilities for air and ground operations.

We are continuing to field the M-1 Abrams tank, the M-2 Bradley Fighting Vehicle and the Multiple Launch Rocket System (MLRS) as the best equipment of its kind anywhere in the world.

Development of the Army Tactical Missile System (ATACMS) for fielding in the very near future gives the Army's Deep Battle Operations a quantum jump in capability, flexibility, and punch.

In modernizing the tactical communications and command and control arena the Army is beginning to reap the benefit of its efforts. The Mobile Subscriber Equipment (MSE) and the Single Channel Ground and Airborne Radio System (SINCGARS) have been well received by the commanders and soldiers that have tested or used the system. These communication systems will significantly change the way the Army fights by providing increased mobility, a lower probability of detection, more reliable equipment and better communications across the battlefield. In addition to our successes in communications, advances are being made in the five battlefield command and control systems, the Army Tactical Command and Control System (ATCCS). ATCCS will give the battlefield commander the automation support he needs to make sense of the chaos of battle and to better apply combat power where and when its needed.

Perhaps our greatest shortfall is not under our control to fix. The Army is prepared to fight in low-, mid-, and high-intensity conflict environments but we have a tremendous shortfall in being able to get the right units on the ground, in theater, to fight. We lack fast military sealift and both inter-and intra-continental airlift to move men and equipment quickly and efficiently. We must fix these shortfalls with fast military sealift and the C-17 aircraft.

FORCE STRUCTURE

The Army's force structure is the smallest since before the Korean War. In order to meet strategic requirements most efficiently, our Army has been designed with a combination of active and reserve component units. Force structure must be preserved so that we can meet our commitments with flexibility and strength in the face of a dynamic world situation. Our small force is stretched to meet requirements now and we can ill-afford future cuts.

CONCLUSION

I have tried to lay out for you the magnitude of the challenges we face today, the progress we have made over the last eight years, as well as cautions and concerns in several key areas as we move into the future.

We must protect force structure. We must also protect the qualitative gains we have made over the past few years and continue to modernize in the face of ever more constrained resources.

I firmly believe that if we do not learn from the past, we are destined to repeat it. We have learned valuable lessons over the last 200 years. In our continuing Bicentennial celebration of the United States Constitution, we should strengthen our resolve to learn from this document and its authors about America's vision for the future. We must commit ourselves to a strategic vision that focuses our national security goals on the future.

We must protect force structure. We must also protect the qualitative gains we have made over the past few years and continue to modernize in the face of ever more constrained resources.

I firmly believe that if we do not learn from the past, we are destined to repeat it. We have learned valuable lessons over the last 200 years. In our continuing Bicentennial celebration of the United States Constitution, we should strengthen our resolve to learn from this document and its authors about America's vision for the future. We must commit ourselves to a strategic vision that focuses our national security goals on the future.

It has been my distinct pleasure to have served as the Secretary of the Army during these most important times and to have been fortunate to work with this Committee. Thank you very much.

Mr. MURTHA. General Vuono.

SUMMARY STATEMENT OF GENERAL VUONO

General VUONO. Mr. Chairman and Members of the Committee it is a privilege to be here before the committee, particularly with the distinguished Secretary of the Army, Jack Marsh. Speaking for every soldier and family member in the Army, I echo the comments you made to the Secretary. He has been absolutely a tower of strength and much of the Army revitalization over the past eight years is due to Jack Marsh.

BUDGET PRIORITIES

I want to talk a little bit about our priorities for fiscal years 1990 and 1991 and discuss the current posture of the Army, the importance of the Army's contribution to the common defense and my assessment of the direction we must take so that we can maintain the momentum we have in the Army today to shape the future.

We are experiencing a great number of successes in securing our vital interests. I believe the successes are due in large measure to sound policy backed by visible capabilities and the readiness of our armed forces. The Army is contributing to this. We have deliberately configured the Army to support the United States national security objectives and to meet our commitments worldwide. Sometimes we lose sight of the purpose of the Army and how we are configured.

STRATEGIC ROLE OF THE ARMY

We have designed the Army to fulfill the strategic roles throughout the world. Composition of that Army, heavy forces, light forces and special operations forces; active and reserve; forward deployed forces and forces poised in the United States for rapid response to contingencies worldwide—is based on the requirements of our strategy.

As we look at the international security environment, we see a time when challenges to our national security are changing and the implications of these changes are not at all clear either from the Soviet Union or other aspects of the world environment.

In my view, all this points to the need for maintaining a trained, ready, and flexible conventional ground combat capability in the United States Army. You all know the tremendously unique role the Army plays as a strategic force and the role it plays in securing the common defense.

Ground forces are essential to advancing our peace time security interests and deterring aggression. Conventional forces are increasingly important as an alternative to early nuclear use, and I believe that the INF Treaty reinforces that trend.

Problems in the developing world create a need for flexibility, mobility and a ground force capable of sustaining operations across the entire spectrum of conflict.

Forward-deployed Army forces and rapidly deployable Army forces provide ground forces capable of sustained operations as a realistic counter to any aggressor's threat.

Army contingency forces provide unmatched forcible entry capabilities, through parachute assaults or clandestine insertions anywhere in conflict of any level.

Army forces are ideally organized to assist in or fight low-intensity conflicts (LIC). The Army alone has the capability to establish the infrastructure for a theater of war and provide unique capability with the Special Forces, the Rangers, psychological operations units, and civil affairs units.

QUALITY FORCE

Today's trained and ready Army—I am proud to say that today's Army is trained and ready, reflecting the highest quality in its history. We have made great progress in the past decade, due in no small part to the leadership in the Executive Branch and in the Congress, including many here today on this committee. The Army and the nation owe a special debt to Secretary Marsh who has led the Army during this period of revitalization.

We have markedly improved the quality of the force. Quality gives us the flexibility which is so essential for our Small Army to meet its worldwide commitments.

Today's airland battle doctrine provides the basis for training our forces for the demands of today's and tomorrow's battlefields, including the essential contributions of our sister services and allies.

We have configured our force structure specifically to meet our strategic requirements. Our training and readiness levels have improved significantly. Modernization programs have begun the process of replacing the aging equipment that characterized the Army a decade ago. Finally, our leader development programs are in place to provide the leaders—officers and NCOs—that will shape the Army of tomorrow.

In spite of the accomplishments of the past and our current high quality and readiness, we have a long march ahead. While we are at a peak of quality and warfighting capability, we are on the margin when compared to the requirements of our strategy and the international security environment.

FUTURE OF THE ARMY

So what about the road ahead. As we look to the future we have significant challenges in producing the quality and size land force that our nation's military strategy and commitments demand. First is what I call the strategy force challenge. Our strategy demands that we maintain a force structure of the quality, composition and size adequate to meet the requirements of the combatant commanders and our alliances to deter and fight and win across the spectrum of conflict. The U.S. cannot afford to cut forces purely for short-term savings, in my opinion.

QUALITY OF LIFE PROGRAMS

High quality, retainable soldiers, have to be supported by fair and adequate pay, benefits, and quality of life programs because not only must we take care of soldier, but we must take care of family members. We can only continue to meet the requirements that we have for quality soldiers with enhanced support of our recruiting program. Key in that is the Army College Fund for all our soldiers, both combat arms and combat service support, and we are asking for that with the strongest plea that we can make before this committee.

MODERNIZATION

We must continue also in the modernization area to develop and field high-quality, technologically superior systems which support our operations across the entire battlefield. Unfortunately, as you well know, in the past few years we have been unable to maintain the pace of modernization due to resource constraints. Our strategy and the supporting modernization plans provide us, I believe, a disciplined process that will allow us to develop and to adjust to the changes in the threat, technology, and resources so that we get the most for the amount of resources we put into modernization.

ARMS CONTROL

The final challenge is arms control. The arms control negotiations with the Soviet Union which are about to begin on conventional armed forces in Europe, I believe, must be approached with strength, unity, confidence and patience.

SUMMARY

To sum up, as we look ahead, we must carefully maintain the trained and ready status of the Army upon which our security rests. This will call for the right mix of readiness, modernization, force structure, and sustainability that minimizes the risks to our nation. For a small Army to fulfill its essential strategic roles supporting U.S. national security interests, there can be no substitute for quality and no retreat from readiness. I assure you we will continue to build for the future in these areas despite budget constraints.

Mr. Chairman, the Army budget that shall be considered by this committee will, to the best of the Army's ability, be one that enables the Army to fulfill its strategic roles given the challenges I have mentioned above. We will keep foremost our national security interests and objectives, as well as the priorities established by President Bush. I want to assure you, we will continue to provide the United States a trained and ready Army, today and tomorrow.

[The statement of General Vuono follows:]

Statement by General Carl E. Vuono
Chief of Staff, United States Army

Mr. Chairman and Members of the Committee:

It is a privilege for me to appear before your Committee to report on the state of the United States Army and to explain our priorities for Fiscal Years 1990 and 1991. I will say at the outset that my statement contains no details beyond the budget submitted by President Reagan, because as you know, the deliberations on the Bush Administration's defense budget have not been completed. I am confident, however, that I can provide you the information you need to understand the current posture of the Army, the importance of the Army's contributions to the common defense, and my assessment of the direction we must take as we enter the final decade of the twentieth century.

STRATEGIC BASIS

The United States is experiencing a period of success in securing its vital interests. Our national security strategy has guided us in assisting our allies and friends, in deterring our potential foes, and has begun to bear fruit at the arms control negotiating table. This success, perhaps unprecedented in United States peacetime history, is due in large measure to sound policy backed by the visible, credible, capabilities and readiness of our armed forces.

I believe the United States Army has contributed to this success. The Army has been deliberately configured to support U.S. national security objectives and meet our commitments worldwide. It is designed to fulfill the strategic roles unique to the Army based on our assessment of the international security environment and the challenges to U.S. vital interests throughout the world. It is focused on providing the trained and ready forces needed by the U.S. commanders-in-chief who are charged with implementing our military strategy. Thus, the composition of the Army -- heavy forces, light forces, and Special Operations Forces; Active and Reserve; forward deployed forces and forces poised in the United States for rapid response to contingencies worldwide or to reinforce forward deployment -- is based principally on the need of our strategy.

The Army's requirements, therefore, are the requirements of the United States for land forces that can implement its national security strategy around the world.

THE INTERNATIONAL SECURITY ENVIRONMENT

While we know that the challenges to our national security are changing, neither the near term nor much less the long term implications of these changes are at all clear. My concerns are threefold.

-- First, I do not doubt that certain fundamental changes are underway in the Soviet Union. Moreover, those changes can be very beneficial to the United States and to the entire community of nations, if they actually result in a less aggressive Soviet Union with fundamentally changed international objectives. However, even if the Soviets follow through with the reduction and changes which they have announced, they will still maintain a very substantial numerical superiority and a threatening presence in Europe.

-- Second, while we also applaud the announced reductions in military production by the Soviet Union, we have seen no evidence that the development and deployment of the most modern combat systems have in any way subsided. It is possible that, even after making the announced reductions, the Soviet Union and its Warsaw Pact allies will retain many of the advantages they currently enjoy over NATO forces.

-- Third, and much more complex, is the threat situation developing in the rest of the world. Periods of change present a fertile environment for increased instability and increased danger. In this increasingly multipolar world, we face the potential of multiple threats -- from countries and factions which are becoming more sophisticated militarily and more assertive politically.

All three of these troubling situations point to the need for maintaining a trained, ready, and flexible conventional ground combat capability in the United States Army.

THE ARMY AS A STRATEGIC FORCE

Within this broad national security context, I want to review for you briefly the key roles that the Army plays, both in peace and war.

We often associate the term "strategic" with long-range nuclear forces. These nuclear forces are, of course, essential to our national security strategy. We must recognize, however, that the U.S. Army is also a strategic force, one which plays unique and irreplaceable roles in securing the common defense. Ground forces are essential to advancing our peacetime security interests and to deterring aggression. Ground forces are the ultimate means to defeat aggression against our citizens, our territory, and our interests.

The four wars that we have fought in this century have reaffirmed that war on any scale centers on the control of land, people, resources, and the adversary's war making capabilities. While the unified action of all services is essential in modern war, only ground forces capable of sustained operations are able to exercise decisive control and terminate the conflict on terms favorable to the United States and its allies.

To meet our national security objectives, the United States and its allies must understand the potential adversaries' intentions and be prepared to contend with the entire range of adversary capabilities. Three elements of the threat are especially important in understanding the strategic context in which the Army and its sister services must operate.

-- First, while our nuclear forces remain the bedrock of deterrence, our conventional forces are increasing important as an alternative to early nuclear use. The INF Treaty reinforces this trend.

-- Second, while the U.S. is certainly challenged by other threats not directly sponsored or controlled by the Soviet Union, the USSR and its allies remain the principal threat to our interests in spite of the significant changes they are experiencing. They will pose the most significant quantitative and qualitative challenge to our security for the foreseeable future.

-- Finally, the set of problems generally associated with the developing world -- insurgency, terrorism, chemical weapon proliferation, and the dramatic growth of conventional military capabilities in many developing countries -- remind us of the need for flexibility, mobility, and a ground force capable of sustained operations across the entire spectrum of conflict.

To protect and advance our security interests in the international environment I have outlined, the Army needs forces that can meet the challenge of a particular conflict, yet are sufficiently flexible to be useful across a variety of types of conflict. The Army must achieve an optimal mix of heavy, light, and special operations forces; of U.S.-based and forward-deployed forces; of combat and support forces; and of Active and Reserve Components.

Army forces, capable of operating in high-, mid-, and low-intensity conflict play unique roles.

-- In areas where the United States has vital interests--such as Europe and Northeast Asia--forward deployed Army forces represent our Nation's most lasting, powerful and, hence, credible commitment. In undeveloped areas, economy of force areas, or regions where political conditions militate against forward deployment, rapidly deployable Army forces represent a realistic counter to any aggressor's threat.

-- To provide contingency forces adequate to meet challenges anywhere, the Army maintains unmatched forcible entry capabilities. Our 82nd Airborne Division, 75th Rangers and Special Forces units can conduct parachute assaults or clandestine insertions anywhere in conflict of any level. The XVIIIth Airborne Corps Headquarters and its support units, as well as the Air Assault and heavy follow-on units, give us the ability to project and employ a fully supported corps anywhere, under the most extreme conditions.

-- In combat, robust ground forces capable of sustained operations can dissuade an aggressor from expanding the conflict. Conversely, if required by national and alliance strategy, Army forces provide an excellent instrument to widen a conflict through an intertheater shift of forces, by a major airborne operation, or by means of in-theater deep operations.

-- The Army is ideally organized to assist in or fight low intensity conflicts (LIC). Among the services, the Army alone has the capability to establish the infrastructure for a theater of war. Just as important, many of of the key types of forces needed to engage in or help others to combat low-intensity conflicts exist only in the Army. Among these Army-unique forces are the Special Forces, the Rangers, Psychological Operations units, and Civil Affairs units.

TODAY'S TRAINED AND READY ARMY

I am proud to say that today's Army is trained and ready, reflecting the highest quality in its history. We have made great progress in the past decade, due in no small part to the leadership in the executive branch and in the Congress, including many here today on this Committee. The Army and the Nation have a special debt to Secretary Marsh who has led the Army during this period of revitalization.

Over the last ten years, we have markedly improved the quality of the force. This quality has enabled us to accomplish more complex missions, train to higher standards, equip our Army with the most modern equipment, and continue to develop outstanding leaders. In short, quality gives us the flexibility which is so essential for our small Army to meet its worldwide commitments. I want to review the main elements of this success.

-- The past decade has also seen a revitalization of Army doctrine. Today's AirLand Battle doctrine is the basis for training our forces for the demands of todays' and tomorrow's battlefields, including the essential contributions of our sister services and allies.

-- We have configured our force structure specifically to meet our strategy requirements. However, our structure is perilously small -- the smallest since 1950 -- given worldwide requirements for U.S. land forces. Today we have the right mix of forces -- heavy, light, special operations -- but we have them in inadequate numbers. Moreover, in my judgment we are very close to the limit of reliance that we can safely place on the U.S. Army Reserve and Army National Guard, considering our current national strategy, our day-to-day commitments and the burden of our immediate contingency requirements.

-- Our training has improved significantly. Today we challenge our quality soldiers, leaders, and units with tough, realistic training that produces the readiness upon which deterrence depends. It also provides the equipment and fulfillment that keeps good soldiers in our ranks.

-- Our modernization programs continue to replace the aging equipment that characterized the Army a decade ago. Our goal is to modernize to improve our warfighting capability against potential threats. Unfortunately, in the last few years we have been unable to maintain the pace of modernization due to resource constraints. The quantity of the modern equipment currently fielded is less than we would like in confronting the size, capabilities, and complexity of the threats we face worldwide. Moreover, increasingly, the most modern Soviet equipment is challenging our technological lead upon which we and our allies have relied so heavily in the past. We are experiencing a quantitative and qualitative disadvantage in ground forces against our primary adversary that is unlikely to disappear even with full implementation of the initiatives General Secretary Gorbachev has publicly announced. We cannot indefinitely continue to place at risk the qualitative edge that we must have to offset the quantitative and geographical advantages of our principal adversary.

-- Finally, our leader development programs are one of the most important ways we maintain the quality force and are also our greatest legacy because they provide the leaders that will shape the Army of tomorrow.

In spite of the accomplishments of the past and our current peak in quality and readiness, we have a long march ahead. While we are at a peak of quality and warfighting capability, we are on the margin when compared to the requirements of our strategy and the international security environment. We have weaknesses which must be addressed. Additionally, we see our existing quality level as very "perishable." To maintain what we have achieved and to correct our weaknesses, we need careful planning and stable funding for the future.

THE ROAD AHEAD

As we look to the future, we have significant challenges in producing the quality and size land force that our Nation's military strategy and commitments demand.

-- First is the strategy-force challenge. Our strategy demands that we maintain a force structure of the quality, composition, and size adequate to meet the requirements of the combatant commanders and our alliances to deter, fight, and win across the spectrum of conflict. The U.S. cannot afford to cut forces purely for the short-term savings, particularly in light of current worldwide commitments to the common defense, the forthcoming conventional arms control negotiations, and the requirements of alliance security and cohesion.

-- Maintaining the quality of the force is another a major challenge. High quality, retainable soldiers, have to be supported by fair and adequate pay, benefits, and quality of life programs. Our best analysis of the economy and U.S. demographic trends indicate that we can only meet U.S. requirements for quality soldiers with enhanced funding of recruiting programs such as the Army College Fund and increased funding for recruiting advertising, including an appropriate amount of it oriented on the unique needs and characteristics of the Army.

-- Modernization in the years ahead will challenge our ingenuity and demand adequate and stable resources. We must continue to develop and field high quality, technologically superior systems which support operations across the entire battlefield and can help us pit our enduring strengths against an adversary's vulnerabilities. The Army's current modernization strategy is designed to accomplish that. As you know, last year we refined our Army Aviation Modernization Plan to reflect this strategy. We are doing the same in the other modernization areas. Our strategy and the supporting modernization plans enforce a disciplined process that allows us to adjust to changes in the threat, technology, and resources.

-- Finally, arms control is an increasingly important challenge. Next week, the United States and its NATO allies will open negotiations with the Soviet Union and its Warsaw Pact allies on conventional armed forces in Europe (the so-called CFE talks). This negotiation has the potential to enhance the security of the United States and its allies. The CFE negotiation promises to be among the most complex and difficult arms control negotiations ever undertaken. The West must approach the conventional negotiations with strength, unity, confidence, and patience, seeking an agreement which significantly improves our present level of security. However, we should not expect arms control initiatives to remove underlying causes of tensions in East-West relations, nor should we let other important but nevertheless ancillary issues--such as expectations that conventional arms control can reduce the cost of security -- cloud our vision.

To sum up, as we look ahead, we must also carefully maintain the trained and ready status of the Army upon which our security rests. This will call for the right mix of readiness, modernization, force structure, and sustainability that minimizes the risks to our Nation. For a small Army to fulfill its essential strategic roles supporting U.S. national security interests, there can be no substitute for quality, no retreat from readiness. I assure you we will continue to build for the future in these areas despite budget constraints.

CONCLUDING STATEMENT

Mr. Chairman, the Army budget that shall be considered by this Committee will, to the best of the Army's ability, be one that enables the Army to fulfill its strategic roles given the challenges I have mentioned above. We will keep foremost our national security interests and objectives, as well as the priorities established by President Bush. I want to assure you, we will continue to provide the United States a trained and ready Army, today and tomorrow.

REDUCTION IN FORCE

Mr. MURTHA. Thank you, General. I want to say to both of you that I have been going out in the field as have the other Members of the committee for the last 12 or 13 years I have been on this committee.

There is no question about the improvement of morale, quality and efficiency. It is all there. We are proud of the part we have played, but you have certainly done an outstanding job. We also realize that there is a strategic review going on inside the White House that is going to have some substantial impact on how the money is going to be distributed.

But I hope as you go through our conversation today you will also think about what Secretary Marsh said, reducing troops in the United States. I realize that we can't unilaterally reduce troops in Korea or Europe, that is a Presidential decision. I have supported the President when he said not to reduce them but I think you have to look at the possibility of rotation or whatever else can be done.

Mr. Whitten.

REMARKS OF MR. WHITTEN

Mr. WHITTEN. Thank you, Mr. Chairman.

I have been with some of my colleagues here, including the Chairman, in meetings in foreign countries, and reviewing our troops in foreign countries. I believe our troops are well trained and are willing to do the job expected of them.

It is your advice that we need more defense funds badly in case the situation gets bad. I think we are sticking our head in the sand when we have a national debt of $2.8 trillion and domestic programs are recommended to be cut by, $11.4 billion. I do not think Congress will stand for a further cut in existing programs without significant reductions in military spending. We could have a situation here that would require your help when the time comes, to see that whatever happens to us on the Floor, is done in such a way as not to create a problem by reducing real defense.

I personally think in many areas we have expanded our operations to satisfy local conditions more than to improve defense. Be that as it may, it is your advice that we seek more funding in order to better meet whatever we face.

Again, under the law our Committee on Appropriations has to file and did file yesterday a Report to the Budget Committee, an overall report. The overall point is that the debt is $2.8 trillion and the President's budget recommends a cut in domestic programs of $11.4 billion. It is evident to me that the Congress will have to work it out.

I say again, we are proud of our troops and they do a great job and whatever we face it is you we will have to look to to keep us on the track.

Thank you, Mr. Chairman.

Mr. MURTHA. Mr. McDade.

BUDGET TRENDS

Mr. **McDade**. Thank you, Mr. Chairman.

Let me compliment you both on excellent and enlightening statements to the committee. I want to begin by expressing a grave concern that I have. It is generally accepted that the Reagan budget proposed a two percent plus up for the military for the fiscal year but is it not a fact that in the last budget submitted up here, there not only was not a plus up of two percent for the Army's budget, but in fact, for fiscal year 1990 we are in a posture of negative growth under the last budget submitted by outgoing President Reagan, isn't that the fact?

Secretary **Marsh**. That is the Army position that we did not have the two percent increment. I suspect that there is disagreement with that Army view at OSD, but we feel that the basis on which it was measured did not reflect a two percent growth and therefore we are at zero——

General **Vuono**. In 1990 the budget authority is zero. If you look at TOA it is a negative .7 percent.

Mr. **McDade**. .7 percent before we get to the next tier of revisions?

General **Vuono**. Yes, sir. The budget amendment that we were working on, if you take our fair share, if you go fair share and you take the Army percentage of that which is about another $1.8 billion off that number we already talked about, then you are down to a negative real growth of two to three percent.

Mr. **McDade**. So you are down negative, negative before we even begin to look at what the revisions are going to be and how we are going to come to the problems alluded to by the distinguished Chairman of the full committee and yesterday Mr. Sabo commented on some of the deliberations that are going on in the Budget Committee.

As I understood the statements, General Vuono, the Army is making a decision that they are going to keep quality forces and force structure in place, that whatever else you do that is your top priority within your budget?

BUDGET PRIORITIES

General **Vuono**. We said over a year ago now—the Secretary and I agreed on certain priorities as we had to take the budget decrement in 1989. Those priorities were to protect the quality of the force, to ensure that near term readiness did not suffer appreciably, that we would hold as much as we could force structure because of the size of the Army right now and we would slow modernization.

Those are the same priorities that we used based on the budget authority we had as we built the 1990–94 POM and as we submitted the budget of President Reagan. So you are correct in terms of quality of the force and force structure and readiness.

INVESTMENT ACCOUNTS

Mr. **McDade**. I don't see anybody on this side of the table quarreling with them, we think they are accurate. We fought for the same kinds of things on this side of the table. But there is an imbalance in your investment accounts, you have to put the investment accounts in a negative growth scenario and those investment accounts are the things that are going to have to be stretched out, bought, paid for, et cetera, to make this work.

General VUONO. We have had to make some very tough decisions and responded to the question the Chairman asked earlier about what happens when your top line goes below whatever it is.

If you take that fair share and continue it through any further decrements, I point out one to the committee that we have had negative real growth for four years and we have had to make tough decisions over four years. That is further compounded now when you have reductions of the nature that you are talking about or that we already have on the budget that is up here now.

What we have had to do is slow modernization to prioritize within the modernization investment accounts against those systems that give us the greatest war fighting capability and try to ensure that we fund those systems and we eliminate systems either kill or stretch out, we don't want to do that, those that don't give us as great a contribution.

Mr. McDADE. As it appears now if this new allocation, I don't know what defines this fair share concept—but the bottom line is that as you look at it and see this new process occurring you can be faced with minus two to three percent of real growth in this fiscal year?

General VUONO. That is correct.

Mr. McDADE. So that would be the fifth straight year which has seen the Army dealt a hand to play that is based upon negative growth every year?

General VUONO. Yes, sir, and that would be the going in position. It would be a negative real growth as it comes over here.

ARMY SHARE OF BUDGET

Mr. McDADE. Prior to the time that we get an ultimate resolution, I am concerned about how this whole allocation process works. We hear this word "fair share", we hear other kinds of allocations, what is the methodology that gets used in the $1 billion and to the extent that you know in the Office of Management and Budget when these numbers get apportioned back to you?

Secretary MARSH. I would like to comment before my associates here, but as a general rule I think the Army has looked at about 26 percent of the total Defense budget give or take a half a percent. So that when you get a decrement drill, it appears to me that the decrement drill is calculated on the basis of what we call the fair share being the 26 percent of the budget. We catch 26 percent of the decrement even though we argue the point, and I am on record to Defense that in this kind of a drill where you are going in at negative growth, the fair share rule should be modified, that you should not apportion on that basis.

Mr. McDADE. You have the most manpower intensive organization in the services?

Secretary MARSH. That is right. People think frequently that you get more money by getting manpower. You have to take enormous numbers of people to get significant dollars. The rule of thumb in the $1 billion—this varies, but the rule of thumb is to get a $1 billion takes 30,000 to 33,000 soldiers. So you can see in order to pick up several billion dollars and when you develop manpower you begin to look at enormous number of soldiers to do that. It doesn't give you a lot of money and it costs you money as a general rule the first year.

You don't get much money——

Mr. **McDade**. You know when we get a budget resolution and Gramm-Rudman which forces us to appropriate toward an outlay number. Even though the control of outlays is a function of the Executive Branch. In this scenario we are inevitably driven to the fast spend out accounts, people and readiness cuts, so the whole thing becomes a continuation of a Catch-22.

Secretary **Marsh**. Yes, sir.

BUDGET REDUCTION

Mr. **McDade**. You are hearing another $1.8 billion cut. Do you have policy guidance from the Secretary's office about how that is supposed to occur, where this decrement is supposed to hit or do they just give you the number and say you will figure out?

Secretary **Marsh**. In a way we have some difficulties in being responsive to you on the $1.8 billion because it is still under consideration. It has not been resolved. There is a great deal of debate going back and forth between the services. Our recommendations, which is what they are at this point, of the budget—our budget drill and our recommendations based on our budget drill went to Defense a day or so ago.

Whether or not they will accept our thrust or whether they will want to move in other areas, I can't tell you because that will be the subject of discussion in the next week or ten days.

I am trying to recall, and I will ask General Freitag, was there some general guidance?

BUDGET GUIDANCE

General **Freitag**. No, there was not. The only thing we were provided was the general framework within which to work for financial guidance for budget authority and outlays.

Mr. **McDade**. I remember last year you got money put in for the aviation program and it was contemplated by everybody that that was going to be part of the five year defense plan. Did you get relief on the aviation program?

Secretary **Marsh**. I think that was treated as a spike rather than a new level. We argued it.

Mr. **McDade**. If you were able to continue with the guidance you got last year you have to take that out of your hide also if you don't get resources to pay for it over five years?

Secretary **Marsh**. That would follow, yes, sir.

Mr. **McDade**. So you are getting program, but not policy guidance, you are getting decrements but no additional money to meet policy guidance. It seems every time it comes out, the heavy cuts are on the Army. I remember last year the committee threw a number out and made an effort to make you well again. I am concerned because as I look at the numbers you are forced to deal with, in another year of two-three percent negative growth under the best of circumstances, you are being put in a situation where you can't live.

You have got a Catch-22 on your hands.

Secretary **Marsh**. I think that is a fair observation.

PROGRAM STRETCHOUTS

Mr. **McDade**. What programs have you had to stretch or kill, that you are contemplating as a result of this negative growth, under the decrement, the $1.8 billion. Have you had an opportunity to look at that yet?

Secretary **Marsh**. Yes.

Mr. **McDade**. You have made a submission?

Secretary **Marsh**. Yes.

Mr. **McDade**. What is on that list of potentials as you look at making up $1.8 billion?

Secretary **Marsh**. As much as I would like to respond to your question, I don't believe that I am in a position to respond. For one thing, I am leaving——

Mr. **McDade**. We will get the information.

Secretary **Marsh**. You will have it next week.

General **Vuono**. Let me—I am staying, I think.

Mr. **McDade**. We hope so, too. Maybe you won't want to, given this environment.

General **Vuono**. The Secretary is correct, it is difficult to lay out specific programs that we either cut or we stretched because there is going to be a deliberation take place between Defense and the services as we debate where we have taken money, what programs we ought to keep because of economic buys and so forth. Let me just say in general terms that because of the budget that we have submitted, and the reductions that we have been asked to take in this effort right now, that we debated long and hard and had to kill some programs and stretch some programs, modernization programs, that are going to hurt our warfighting capability in various functional areas.

Mr. **McDade**. Let me just say that I think that the budget as I look at it is impossible for you. I don't know exactly where we are going to end up, but I have grave concerns about it. We have spent a lot of time as was mentioned in the Secretary's statement, this committee supported getting the Army back to the position that we thought you could achieve your mission and be a first class organization. Today, we are there.

The last thing we want to do is repeat some of those mistakes of the past. I thank you both for the effort you have given us to enlighten us. I thank the Chairman for allowing me to take extra time on the questioning.

Thank you, very much.

Mr. **Murtha**. I have put together a paper that shows something concrete that we could argue with the Budget Committee in order to show them the seriousness of the budget as it is presented and with the tendency to cut. It is a very serious thing to our national defense if these cuts were to be made.

Mr. Dicks.

IMPACT OF SEQUESTRATION

Mr. DICKS. Let me ask this question, Mr. Secretary and General Vuono. There has been a lot of very cavalier talk by this Administration and the Director of OMB about letting sequestration go into effect. What would be the impact of sequestration, assuming we are talking about $15 billion cut in outlays I am told $15 billion to $19 billion would come out of Defense.

If you figure $35 billion to $40 billion in budget authority, we would be that much down from $308.9 billion which is the total for our 050 allocation under the Bush cuts. That would take you down to around $270 billion in budget authority. I hope, Mr. Marsh, that you have had a chance to consider this and I want to urge you too. You have done a good job, you have been there in the good days, now the bad days are coming.

Secretary MARSH. There have been some bad days while I was there.

Mr. DICKS. And I have suffered a few of those bad days. If you went $35 billion to $40 billion below $308 billion, that would take you down to $270 billion range. Now, I would hope that somebody would explain to Mr. Darman what the implications of sequestration are on this budget. Has that been done?

Secretary MARSH. I would hate to speak for who has talked to the Director of OMB——

Mr. DICKS. I get the impression that he doesn't know some things about Defense. I have been with him and asked him about it and his answer was what is wrong with sequestration? I would hope that the Joint Chiefs and the Secretary of the Army after this parade of horribles about going down to $292 billion would remind the Director of the Office of Management and Budget about what the implications of sequestration would be. I have heard a lot of serious people say, "what is wrong with sequestration?"

Secretary MARSH. There is a lot wrong with sequestration in my view. You have the question of whether or not you exempt personnel accounts or whether you include them. If you exempt the personnel accounts, you are looking at—if you exempt them, you are looking at a 9.6 reduction I believe in all the other accounts. If you don't exempt personnel, it is 5.8 percent. As a general rule.

Mr. DICKS. That is the total Army budget?

Secretary MARSH. Yes, as a general rule.

Mr. DICKS. How much would that be in billions? What is the Army budget, about $100 billion?

General VUONO. $80 billion.

Secretary MARSH. It would be about $8 billion.

If you get into a sequestration, as you know, under a formula it generally applies without flexibility across the board. There are certain exceptions, but it is not a flexible type of thing, generally speaking. It just goes right across the board. I have been through one of those before.

Mr. DICKS. Do you have the authority to exempt personnel? Does the Commander in Chief?

Secretary MARSH. Either Congress or OMB.

General VUONO. We can't make that decision. We could recommend.

Mr. **Dicks**. At that level of cut, would you recommend force structure not be cut? I don't think you would, would you?

General **Vuono**. Well, it would depend on—I don't want to interrupt the Secretary, but the problem with sequestering is lack of flexibility in the accounts. If you don't exempt—even if you exempt personnel, then you still have to take a higher percentage cut in other appropriations. If you take that size of cut, I would like to have flexibility where I think it is most prudent in terms of giving us as ready an Army as we can have. When you sequester that, flexibility is not there.

Secretary **Marsh**. We have done some computations——

Mr. **Dicks**. Has anybody written this Director of the Office of Management and Budget? Has the Joint Chiefs advised him or any of the——

Secretary **Marsh**. Communications from the Department of Defense must move in the Office of the Secretary of Defense over across the river to the White House to NSC. They cannot move from the Service Secretary level.

Mr. **Dicks**. We have an Acting Secretary. Will Taft is a very competent individual.

Secretary **Marsh**. I suspect he has pointed out to Mr. Darman the impacts of this. Mr. Darman served in the Department of Defense in 1973. He was there with Elliott Richardson, because I was there.

Mr. **Dicks**. There was no Gramm-Rudman-Hollings in those days.

Secretary **Marsh**. I think he was developing a knowledge——

Mr. **Dicks**. I must tell you, when I explained to him what would happen with sequestration, it sounds like the first time he had ever heard it. This was in December. I think somebody has to get his attention about this, because $292 billion looks awfully good compared to $270 billion.

Secretary **Marsh**. I would be happy to make a recommendation that Defense advise him of that.

CONGRESSIONAL BUDGET OFFICE RECOMMENDATIONS

Mr. **Dicks**. I would hope that that would be done.

Now, CBO had some suggestions—I know you will love these, General, in the 1989 annual report to the Senate and House Committees on the Budget, Part 2 Reducing the Deficit Spending and Revenue Options, the Congressional Budget Office presented the following options to limit spending for national defense.

The first thing they talked about was eliminating the three Army light divisions. Approximately 54,300 soldiers would be eliminated, and the equipment programs would be terminated. I know how painful that is. I think I am the only Member of Congress in the whole country who has had a brigade taken down, stood down at Fort Lewis. I had to suffer through that.

The only thing I have asked is that the division be properly restructured so the Ninth in the future would be a better and stronger division. We are still waiting on that.

But I have to say, I asked myself a question: If we are going to have to make these kinds of cuts, wouldn't the first priority be to reduce the light division in New York and the light division in Alaska? If it isn't, why isn't it?

FORCE STRUCTURE REDUCTIONS

General Vuono. First priority would be to review our strategy and then determine, based on that, what the force structure that you need to support that strategy, and then what it is that you can provide and where you can most afford to take the risk if you reduce force structure.

As I said in my opening statement, we have deliberately structured the Army to meet our national security objectives.

Mr. Dicks. But those two divisions, the Alaska Division and the division in New York, they are not yet in place, are they?

General Vuono. Yes, they are. They are in place. The 6th is in place. We need to restructure the 6th based on some cuts we took last year. As a matter of fact, we closed the Second Brigade, and it was temporarily based in Benning. We placed it in Fort Drum right now.

As the Secretary said, 17 are combat ready. The 10th Infantry Division (Light) is in a status it approaches being combat ready. So those divisions are in place, and particularly Drum. We have put in the infrastructure for that division.

Mr. Dicks. You wouldn't necessarily agree that limiting three light divisions is the way to proceed?

General Vuono. I wouldn't agree with them, because the number of soldiers you can eliminate as a result of that.

Secondly, I disagree with them the amount of resources you can save; and, thirdly, I would disagree with them on arbitrarily taking out any divisions without a conscious addressal of the strategy that we are trying to support for this nation.

Mr. Dicks. What are the missions of the divisions in Alaska and the division in New York?

General Vuono. Both of those divisions, whether it is Alaska or New York or the other light divisions that we have designed, are designed optimally for fight in a low-intensity environment and, properly augmented, can fight in a mid to high-intensity environment.

We employed elements of the 10th Division from Drum to Germany, where they performed on this year's reforger exercise, I visited that division, and they were being employed in conjunction with heavy forces as we had conceptually laid out when we designed it. So they have a world-wide deployment role just as the other light divisions do.

Mr. Dicks. What about the Alaska Division? What is the responsibility there?

General Vuono. It has a world-wide deployment capability, as well as a requirement for the defense of Alaska and the Aleutians.

9TH INFANTRY DIVISION (ID) RECONFIGURATION

Mr. Dicks. As I mentioned, the Army is in the process of reconfiguring the 9th Division from a motorized organization to an organization more in line with the standard mechanized configuration.

Last fall, an interim design, incorporating the 81st National Guard brigade was announced, but no final design has yet been announced.

What is the current status of the design review for the 9th Division?

General VUONO. The design is still under review. It hasn't been brought in to me yet for final decision. As you know, they are looking at several options, one of which is a mechanization.

Mr. DICKS. What is the best estimate of the timeframe for the transition of the 9th? The brigade is gone.

General VUONO. We rounded it out with the 81st.

Mr. DICKS. Right.

General VUONO. I don't know right now the exact date that we will make that transition.

Mr. DICKS. Put it in the record. Okay?

General VUONO. I would say the 1992-1993 timeframe is probably what we are looking at, but I will get it for the record.

[The information follows:]

Transition of the 9th Infantry Division (Motorized) will probably be in the 1992-1993 timeframe.

Mr. DICKS. What is going to take until 1992 to 1993 to do?

General VUONO. Once settling on the design and getting the equipment up there and assuring that we got the right equipment to meet the design.

Mr. DICKS. Does the division remain capable of meeting its mobilization assignments during this exercise?

General VUONO. Yes, it does.

M-88 RECOVERY VEHICLE

Mr. DICKS. General Pihl, could you give me a status on where we are on the M-88 recovery vehicle?

General PIHL. Yes, I can. The Army has a requirement for the recovery vehicle. We are looking to buy 276 vehicles over the five year defense plan for $446 million. We had a pull-off last year. As you know, both General Dynamics and BMY met the requirement with difficulty, especially in the 70-ton tow. The General Dynamics vehicle had problems with pintle placement and the BMY has a problem with its winch. We have awarded a R&D contract to BMY to fix the winch and transmission. They are engaging in those fixes. We will make a decision in early fiscal year 1990 for full-scale production.

At the present time BMY has petitioned the Army to release $24 million in long lead money and the service acquisition executive, Mr. Stone, has said no to that.

Mr. DICKS. What is the reason for that? We appropriated that money in 1988. I think you are in violation of the Budget Act. You are supposed to either seek a rescission or obligate the money. The fiscal year has gone by. I don't understand how you can sit on the money.

General PIHL. The money is on hold in the Defense Department waiting for a certification to be forwarded, based on the pull-off from last year. At the present time, since neither candidate vehicle has met the requirements, we are in no position to ask the Secretary to certify release of the money. That is being carried out in the certification by them engaging in the R&D contract.

Mr. DICKS. There have been so many months of delay on this thing, and as far as I can tell, the company for a while wasn't allowed to work on the fixes because of not having the R&D situation in place. So this one does not, it reminds me a lot of the other procurement problems we have watched over the years, to be frank.

The contractor, I can't understand their position. They have been sitting there for months, they have a proposal in. They weren't even allowed to work the fixes. It is not a pretty story, General.

General PIHL. Yes, sir, we did take some time between September and November; of course, there was the budget decrement.

Mr. DICKS. I understand that in your revised Bush budget you have zeroed this program. Is that correct?

General PIHL. Sir, in the numbers of programs that we have looked at in the input from the Army up to Defense, every program that I manage has at one time or another been considered, but until Defense reviews the product as the Secretary and the Chief have just said, I can't directly answer the question.

Mr. DICKS. What bothers me here is General Thurman in a message stated, "I understand there is some question as to the need to develop an improved recovery vehicle. I supported the IRV program for some time. We have serious safety deficiencies in the current RV." Is that true?

General PIHL. That is true, the Commander, Tradoc sent that message, and the acquisition officer considered that carefully.

Mr. DICKS. Is it true we have current safety deficiencies in the current RVs?

General PIHL. Yes. However, we can solve those deficiencies. They must be done exactly, perfectly, in the field by putting a tail vehicle behind every tank that has to be towed downhill. You have one towing and an anchor vehicle on the back, not the easiest way to do the job, but it is safe.

Mr. DICKS. Going on with General Thurman's telegram—"It is high time we solved them. We can't afford to allow indecision and perceived budget constraints to jeopardize the lives of our soldiers, nor can we allow a situation to persist involving the safe operation of heavy vehicles in the international environment."

Now, what we have here is a situation where you have people in the field who think they need the recovery vehicle because the current one can't handle the heavier M-1 tank. Obviously this budget situation is a difficult one. But, as I understand it, the idea of towing a tank with a tank has limitations, you can't also right it or turn it around. If you go back and look at your own studies, you will find out that without this recovery vehicle, you are going to have a situation out there where tanks are going to be damaged in the first few days and you are going to have a very difficult time getting them back into combat. That doesn't seem to make any sense to me at all.

General PIHL. Sir, I understand the point perfectly. We have 2,400 basic M88s in the field. So in terms of righting a vehicle or doing difficult recovery operations where multiple recovery vehicles are needed, the basic M88 can perform that mission.

Mr. DICKS. You have to have two of them, though.

General PIHL. Yes, sir. In Vietnam, under fire, I have recovered a vehicle in a bomb crater with as many as five vehicles hooked up to the towed vehicle.

Mr. DICKS. Why do we spend all this money on doing this in the first place if it is not necessary, General?

General PIHL. I am not saying it is not necessary. I am saying the central issue is the towing.

Mr. DICKS. How much have we spent on this project up to this point?

General PIHL. In the M88 case?

Mr. DICKS. Yes.

General PIHL. If I could put that for the record.

Mr. DICKS. No, I would like to have it. Let's have it.

General PIHL. Prior-year funding, we are appropriated $24.1 million.

Mr. DICKS. That is all we spent on this?

General PIHL. In Procurement only. We spent $24.4 million in RDT&E. We have not obligated any of the procurement money.

Mr. DICKS. I don't understand this. We spend this kind of money and come up to this position and say we don't need it because we can use what we have already.

I have to ask the question, who made the requirement? Who said we needed this in the first place, and now we don't need it?

General PIHL. There is a requirement for the vehicle to tow a tank when you get to the improvements in the Block II tank where the tank will approach 70 tons in weight. I was only responding to the comment about righting a vehicle and the way in which difficult recovery missions are performed.

The importance of the vehicle for the requirement is to tow it from where it has been disabled behind the next hill to get it refitted and repaired, which our battlefield damage repair techniques show us how to do, and get it back into the fight. I am not backing away from the requirement at all, I was only addressing difficult recovery operations.

ARMY DEVELOPMENT AND EMPLOYMENT AGENCY

Mr. DICKS. The fiscal year 1989 Appropriations bill provided $3 million above the budget request in research and development funds, and $1.5 million in additional operations and maintenance funds for the Army Development and Employment Agency to allow completion of efforts to integrate software for tactical command and control systems as well as associated activities.

These funds were provided consistent with information provided the committee by the Army on the funds required to accomplish this task, which would otherwise require reprogramming action.

In addition, the committee directed the Secretary of Defense to study a reorganization of ADEA to meet JCS and CINC requirements. That study is underway and is due to be submitted next month.

Despite these developments, I have been provided an Army form 1416 document that indicates your intention to reprogram $3.6 million of ADEA funds without prior approval.

One, given the clear Congressional interest in this item, how does the Army justify a no prior approval reprogramming?

General **Freitag**. The 1988 reprogramming was below the required reporting, as you indicated, $3.6 million, and although it is a special interest for you, it has not been designated for the Department as a Congressional special interest item.

Mr. **Dicks**. What is the status of this action? Is a similar effort underway in the O&M accounts?

General **Freitag**. I am not aware of any. The official programming has been done, and that was to pay a 1988 bill. There was no anticipated 1989 adjustment.

Mr. **Dicks**. So it is done?

General **Freitag**. Yes, sir. To pay 1988 bills.

Mr. **Dicks**. What bill?

General **Freitag**. Bills for higher priority programs.

Mr. **Dicks**. In what program?

General **Freitag**. In miscellaneous R&D programs, sir.

Mr. **Dicks**. What is the rationale for this shift of funds? Have significant cost savings occurred, or are you abandoning the task for which these funds were specifically provided?

General **Freitag**. Sir, I have no information on the tasks. The specific reprogramming action was, in fact, to accomplish high priority 1988 objectives.

Mr. **Dicks**. So it was a shift from R&D to O&M?

General **Freitag**. No. This was a shift within the R&D appropriation, not O&M. It was an authorized reprogramming.

Mr. **Dicks**. Can you have it by this afternoon when we reconvene?

General **Freitag**. Yes, sir.

[The information follows:]

ADEA reprogrammings for FY 1988 were for excesses resulting from the Army's decision to terminate all activities at ADEA by the end of FY 1988. The $3.59 million were reprogrammed for higher priority programs within the R&D appropriation, not to O&M.

Mr. **Dicks**. What are your plans for fiscal year 1990 and beyond to meet the ADEA efforts?

General **Vuono**. To the best of my knowledge, it is on track according to the plan we have laid out. I can get more details for you, but to my knowledge it has not been brought to my attention there were any difficulties with the plan we had laid out for ADEA. You are correct, the study is ongoing, the joint study is ongoing right now.

Mr. **Dicks**. Thank you, Mr. Chairman.

Mr. **Murtha**. Let me just say one word. Mr. Dicks talked about the industrial base as also being a problem here. You have a small company that basically does good work against a big defense contractor. I would hate to see us lose that contractor. I think you have to take that into consideration.

Mr. AuCoin.

Advanced Anti-Tank Weapon System-Medium

Mr. **AuCoin**. Thank you, Mr. Chairman.

I want to thank my friend, Mr. Miller, for allowing me to go out of turn so I can meet a constituent who has been waiting for the 45 minutes or so while Mr. Dicks has been asking questions.

Let me ask you a few questions about AAWS-M. You know I have been keenly interested in this from the inception. You have two advanced anti-tank weapons in development now, the medium and heavy. I understand that the Army needs both.

But of the two, and granting that you do need two, which do you need, which does the Army need most urgently right now?

General VUONO. The AAWS-M. That is—as you may know, we have down selected the contractor to finish the test, and that manned portable system is urgently needed for our heavy and light forces.

Mr. AUCOIN. And the AAWS-M is the single-man handled anti-tank weapon?

General VUONO. Yes.

Mr. AUCOIN. The AAWS-M, how many men are required to operate it?

General VUONO. It would be a crew, and we are in the process now of trying to determine the size, probably on a Bradly chassis. Of course, that is for our heavy forces.

Mr. AUCOIN. Just for the record, why is the urgency from the Army's standpoint, from the military standpoint, why is the urgency on the AAWS-M?

General VUONO. Because we need a manned portable system that can be fielded for both our dismounted troops, heavy and light, for mid intensity and low intensity. As you very well know, we can face a potential enemy, even in a low-intensity environment, with our light forces where they would have an armor capability that we need the AAWS-M.

Mr. AUCOIN. The AAWS-M down select ended up with a true-fire and forget technology.

General VUONO. Yes.

Mr. AUCOIN. Driving that selection must have been some consideration for operator survivability.

General VUONO. Operator survivability, effectiveness, cost and reliability of the system, with effectiveness being the driver.

Mr. AUCOIN. Fire and forget, but not having an effective weapon doesn't help much. But what we have then for the first time is truly the infantryman's dream. For the first time the ability to pop up, get off a round, duck, get out of sight, and protect himself from the counter-fire from the tank.

General VUONO. It has been long overdue.

Mr. AUCOIN. I remember as an old infantryman myself, I remember when I first got into this issue going down to Benning and asking a couple people in a platoon or asking a platoon to have people raise their hands as to who operates the Dragon. Everybody started holding their sides laughing at the poor devil holding up his hand. I don't know what he had to pay for life insurance. When you fire that round, it advertises the position, you have to hold it on the target until that round hits that target.

In the meantime, I can't imagine the target tank is going to sit there benignly waiting for the round to arrive. It is going to move, and the guns are going to be aimed at the operator. That puts at risk our servicemen, and that is why I want to congratulate the Army in the selection of this AAWS–M fire and forget weapon.

Costs, of course, were part of the consideration. My understanding is that the AAWS–M selection, the fire and forget technology, wasn't the absolute cheapest alternative in terms of unit acquisition costs. I think it would be good for the record for the Army to explain what the countervailing reasons were for taking into consideration all these things for that selection.

General VUONO. We will provide that for you for the record.

[The information follows:]

The Army and Marine Corps considered four areas in the AAWS–M selection; they are in priority order: Operational effectiveness/technical; cost/price; Integrated LOGISTICS Support/Maintainability; and Management/Production. Cost/Price was the second most important area considered. The Source Selection Authority selected the system that represents the best value to the government.

The Army has conducted a baseline cost estimate for the fire and forget technology. In the Army decision process affordability was a prime consideration. The system is considered affordable and will be supported in the buget process.

Mr. AUCOIN. Would among them be the survivability effectiveness?

General VUONO. Operational effectiveness, and I guess the bottom line is the best value. It gives us the best value for our soldiers and for the capability.

Mr. AUCOIN. So it is a question of price being important but value obviously—it is what it buys?

General VUONO. Operational effectiveness.

DRAGON PROGRAM

Mr. AUCOIN. Let me ask you about the Dragon 3. In light of the current status of AAWS–M, does the Dragon 3 make sense to the Army?

General VUONO. We have elected to only fix the warhead on the Dragon for those Dragons that we have.

Mr. AUCOIN. That means the Dragon 2?

General VUONO. Yes, Dragon 2. We are not going to go with the Dragon 3.

Mr. AUCOIN. The Dragon 3 would result in the funding of a new production line for a manned portable antitank weapon. It would have the same mission as the AAWS–M?

General VUONO. With the success we have had on the AAWS–M and for our mission, the AAWS–M seems to make sense together with the Dragon 2 fixed warhead.

Mr. AUCOIN. Is the Dragon 3 a fire-and-forget weapon?

General PIHL. No, it is a laser beam weapon. You must stay in the loop to fire the weapon.

Mr. AUCOIN. So it raises survivability problems?

General PIHL. Yes, sir.

Mr. AUCOIN. Perhaps not as great as Dragon 2, but still survivability problems.

General PIHL. It has a faster rocket motor, a slightly increased range. It has a new day-night tracker, which is attractive.

Mr. AUCOIN. The operator is still exposed?

General PIHL. He must stay at T-shirt range.

Mr. AuCoin. On the Dragon 3, does it offer significant costs and delivery schedule advantages?

General Pihl. Sir, we don't know. At the present time, Dragon 3 is on paper with a couple of contractor demonstrations. We understand the Marine Corps' rationale for having one because they are nearly out of inventory on Dragon, so they need to replenish that inventory. But we think we have enough Dragons to bridge the time between now and the time AAWS-M comes into inventory.

Mr. AuCoin. My understanding is the IOC, or the fire-and-forget AAWS-M weapon is ———.

General Pihl. Right.

Mr. AuCoin. Now my further understanding is that it would be highly unlikely for Dragon 3 to go through the full production and beat that IOC by much at all if it could indeed.

General Pihl. It will be close to a wash, sir.

Mr. AuCoin. You are familiar with the Dragon 3, aren't you?

General Pihl. Yes.

Mr. AuCoin. It would be close to a wash?

General Pihl. Yes, sir.

General Vuono. I might add, one of the reasons we can do that is because we have a significant number of Dragons available that we felt by fixing the warhead would carry us through, and we would put our emphasis on the AAWS-M.

Mr. AuCoin. The Marine Corps plans to spend about $300 million on the Dragon 3. It is a tight budget situation. It is a $300 million item on a weapon that has the same mission as the AAWS-M fire-and-forget weapon. And it is not as effective from a survivability standpoint. Maybe not even from an effectiveness—I would guess that that later statement is true as well. Wouldn't it be better to increase that $300 million in the AAWS-M and lower the unit costs for everybody that participates in it, Marines and Army? That is my opinion. What does the Army think? Oh, come on, don't be shy.

General Vuono. We have had some long discussions on that, and the Marine Corps believes——

Mr. AuCoin. I know what they believe.

General Vuono. Given the situation that they are in, I might make the same decision they make given their mission and given their shortage of Dragons. So I can't quarrel with what the Marine Corps decision was.

Mr. AuCoin. That surprises me, General, because here is what I see happening. If we open up—in this budget environment where you have the problems you have described earlier in your answers to other questions from members of this committee, it is inconceivable to me that we are going to have two hot production lines producing manned portable antitank weapons. I think we will do well to do one and do it well and keep a unit production level on an affordable, reasonable sound basis.

It seems to me any attempt to dual-track this runs an enormous risk in terms of budgeting.

General Vuono. That may be so——

Mr. AuCoin. Wouldn't it be better to keep the unit costs down for AAWS-M by folding these investments into the AAWS-M and keeping those costs low for everyone? General Gray was here yesterday and said he had an affordability concern about AAWS-M. One of the ways to address that would be to fold the $300 million into AAWS-M.

General PIHL. First of all, I would like to point out the AAWS-M program is a joint Army/Marine Corps program. They helped in the source selection process, they tested it. They looked at one of their expeditionary forces being armed with AAWS-M and two with Dragon 3. While we would bring in the AAWS-M in the ——— timeframe, they were looking toward the end of our production run for their one division's worth of AAWS-M. So it is a question of a low/high mix, and they started the Dragon 3 program——

Mr. AUCOIN. They did that?

General PIHL. Yes, sir.

Mr. AUCOIN. They did that because they were convinced the Army wasn't going to make the right decision in their view on the AAWS-M selection. They were convinced you guys were not going to really go for a fire-and-forget weapons.

Now you have shown them that you are really reading off the same page. You have the same concern for the operator. That to me then, I think, reintroduces the question as to how viable and sensible it is to be pursuing a Dragon 3 option at the same time we have AAWS-M.

General VUONO. You have to remember they have a shortage of systems.

Mr. AUCOIN. Dragon 2s. But the Army has generously offered to make improved warheads available to the Marines, and this committee is able to help them with that short-term gap. So that removes another argument.

Then with regard to the high/low mix, I was a little surprised the other day to hear about the need for a high/low mix. I want you to help me with this if you would. I guess what I would understand from the need for a high/low mix would be that in a less intense military environment, where the enemy armor isn't the most advanced, perhaps something less than a fire-and-forget weapon would be needed. So that may be in a third world situation where the infantryman might be up against T-54s or T-55s, something less than the fire-and-forget—that would be the low end and a use for the low end. Is that correct?

General VUONO. That is right. I think you could ask any of us whether we favor high/low mix, none of us do. We would always like to have the more modernized. Hindsight.

But there are situations, the Army has it, too, where a high/low mix is satisfactory as long as you know the area you are going into and the level of threat you are going to face in that area.

Mr. AUCOIN. Here is the question I have about that. Let's assume we have an infantryman out there armed with a Dragon 2 or something that is not fire-and-forget. What difference does it make whether that target is an older T-54 or T-55 if that operator has to sit with that Dragon, squeeze off a round, hold it on the target and the operator inside the older tank sees the position of the infantryman advertised because of the flash, the noise, and the dust? That turret is still going to turn. It doesn't matter to me if I were the infantryman, whether I was shooting at a T-54 or one of the most modern Soviet tanks, I think my life is equally at risk.

And if that is the case, what sense does it make to have a high/low mix?

The question is how long the operator is exposed after getting off the round.

General VUONO. The survivability consideration is an important factor. I was talking about in the context of the low mix which gives you a kill against certain threat tanks. That is why you could use a high/low mix because the lethality will give you that kill.

Mr. AUCOIN. I am thinking about the reverse lethality, which seemed to be an important consideration. I just don't buy the high/low mix if we have got a technology that is promising, if we have two services in harness together, and if we have the ability to fold our financial resources into a program behind that new technology, to me it doesn't make any difference whether it is an older Soviet tank that is a target or a new one. I want those people to be able to pull the round off, duck and be out of harm's way.

General VUONO. We all share your same concern.

Mr. AUCOIN. And I suspected that that is exactly what you thought. So in an ideal world, you wouldn't mind at all having a high mix.

General VUONO. As I said earlier, you ask any military man and he will say he wants the high side of the equation all the time for just the reasons you have talked about: lethality, survivability, all those factors that cause us to modernize our force would hold true.

Mr. AUCOIN. Well, I want to again compliment the Army for the way it has handled the AAWS-M competition, General Vuono. I think this has been a useful discussion put on the record. I don't think you need to spend a lot of time arguing the viewpoint of the Marine Corps because it has been my experience the Commandant does an awfully good job of that himself, and he did so yesterday. But my compliments to you for the way the AAWS-M program has been brought forward.

HELICOPTER UTILITY

Let me ask you a couple questions about helicopter combat utility. Everybody knows what the Stinger missile has done in Afghanistan and how effective it has been against Soviet helicopters. I have been doing a lot of probing around and investigating, reading about Soviet similar capability. The Soviets have something called the SA-14, which is a similar but not as capable a weapon. Reports are that they are working on other Stinger equivalent missiles. And I believe those are authoritative accounts.

What does this tell us, just looking ahead, what does this tell us about the utility of helicopters in the future? How are they going to survive against Soviet Stinger missile equivalents? What is going to happen here?

General VUONO. We think as we tried to lay out in our aviation modernization plan that the future in terms of long term, the future as far as we are concerned rests with a helicopter like the LHX, which gives us greater mobility and capability. It is an armed bird, small, and will have we think, the kind of survivability built into it that even as the threat improves its capability for manned portable antiaircraft systems, the LHX will survive on the battlefield.

Mr. AuCoin. How would it be invulnerable to a Stinger? In a race between a Stinger warhead and LHX, I think I would bet on the Stinger.

General Vuono. Well, I don't know. I don't know whether I would agree with that. We are coming up with an effort that would take advantage of the LHX's mobility. As I say, its survivability, capability built into the system——

Mr. AuCoin. Do you have something to talk about in closed session?

General Vuono. I would like to wait until this afternoon on that.

SOVIET TANKS

Mr. AuCoin. Absolutely.

I will save the other question I have—I have another question. I will save it for that session, too.

Let me just ask about something else that I have been looking into. Every once in a while an article will pop up in the press about the Soviets having an advanced turretless tank under development. I actually heard that the Soviets, according to some reports, have a few hundred of them already deployed. I guess I can't ask you whether, in fact, they are deploying it.

Are there any pros and cons on turretless tanks? Should we be considering building them?

General Vuono. Could we do that this afternoon in closed session so we can talk about the whole heavy force modernization program and what we are trying to do not only for us but how that combats the threat and gives us an over-match capability.

Mr. AuCoin. Absolutely.

Then I am going to hold off this question about helicopters, too, for that closed session. General, thank you very much. Thank you, Mr. Chairman.

Mr. Murtha. Mr. Miller.

Black Hawk Helicopter

Mr. Miller. Thank you, Mr. Chairman.

I would like to find out a little more about the UH-60 Black Hawk helicopter. I understand that there are problems there, and to quote from the Inspector General's report, an extreme electromagnetic interference vulnerability. Apparently the IG is also concerned about the viability of the interim fix, which apparently is to apply metallic paint especially to the doors. Can you give us a little background on where we stand at the present time?

General Pihl. Sir, we are looking at all electromagnetic and environmental effects on all of our helicopters. We are starting with the Black Hawk and hardening the internal electronics of the Black Hawk to 200 volts. We are trying to also protect the Apache, the AHIP and CH-47, through both hardening on the inside, electronics boxes and the kinds of wire and redundancy that goes on, and then materials applications from the outside.

We recognize that in the environment these helicopters, which have electronics embedded in their flight controls, need to be hardened so they are protected from those threats.

Mr. **Miller**. Can you give us a little background on the estimate of the cost of a permanent fix?

General **Pihl**. Yes, sir. In the case of the Black Hawk, which is the one we are working on most significantly right now, it will probably cost us one aircraft per year's worth of procurement to apply those fixes to the fleet to harden the 200 volts per meter.

Mr. **Miller**. Apparently the Navy had that requirement of 200 volts per meter, and the Army had 20 volts per meter.

General **Pihl**. That is correct, sir.

Mr. **Miller**. And that seems to be a wide discrepancy.

General **Pihl**. At the time that we put together the materiel needs statement for the Black Hawk helicopter, we thought 20 volts per meter was the ambient condition we should protect against. Since that time, we have had experience by flying next to some very high electronic sites in Germany where we learned that the stabilator on the aircraft could be affected, as other flight controls could be affected, by large doses of electricity.

So we have joined the Navy in that standard to harden the 200 volts per meter.

SOVIET EQUIPMENT

Mr. **Miller**. I read, Mr. Secretary, in your statement something that bothers me when it comes to the Soviets having fielded new fire support systems five times faster than the United States. I'm referring to Europe. We constantly hear that we are spending the defense dollar because we need to keep just a little ahead, at least a little ahead in technology and performance, and all at once the Soviets, I see, have something, a fire support system five times faster.

Are we dragging our feet, or what took place that allowed them to move ahead of us?

Secretary **Marsh**. Mr. Miller, I think there are several things that statement refers to. One, there is a tendency often times to feel that Soviet equipment, generally speaking, is of a more inferior nature. That is not necessarily the case.

In fact, they have some very fine equipment. You find peaks and valleys, you might say, in their equipment status. There are areas in which they have weaknesses, but there are areas in which they have strengths, and they produce some very fine equipment. They are continuing to modernize their force, and we do not see a slackening of the modernization of their force based on a number of these other hopeful signs coming out of the Soviet Union.

Thus far, we do not see that translated into a slowdown of the modernization of the Soviet force. One of the areas in which the Soviets have been working, and General Vuono should amplify what I say, because he is an expert in the field—they have been seeking to modernize their artillery and a lot of their command and control, which has been a weakness.

And I think—I would like for General Vuono to further amplify on my comments.

General **Vuono**. They have been working hard to be more responsive to command and control, and also they have done a great deal of work on self propelled artillery. And we have had an ongoing effort to lay out what it is we must do from the Army standpoint to combat that, and what it takes is an effort to not only improve our capabilities in artillery pieces, but the entire fire support arena target acquisition.

But it is a tremendously great concern to us, the way they have built up their artillery over the last number of years.

SOVIET INDUSTRIAL BASE

Mr. **Miller**. I am not sure that we can talk about some of the things that I would like to talk about. If not, we will talk about them this afternoon.

But we hear of the concessions that Gorbachev is offering, what he would like to talk about. Are you of the opinion that the Soviets have moved so far in the modernization of their technology that perhaps they could remove some of their troops? Could they remove some of their equipment, and still operate their production lines?

Secretary **Marsh**. You cannot discount the possibility that the programs they seek to put in place, perestroika, will make more efficient and modernize their industrial capability. The Soviets have a problem in their industrial base now. They have some problems, things like machine tools and other things, which they seek to remedy, and one of the results that could occur, I can't say that it will, but one of the results that could occur would be a more modernized industrial base that would be more effective and more efficient in producing more material.

The announcement of the various troop cuts that have been made by the Soviets, 500,000 force reduction, for example, the withdrawal of four tank divisions from East Germany, one from Czechoslovakia, one from Hungary, these are overtures or statements that have been made—I cannot say at this time that we have seen that they have occurred or have begun. I cannot say that they will not either. We anticipate that they probably will.

But the efficiency and effectiveness of their force may very well be enhanced by some of the efforts that they are making to modernize their economy generally and their industrial base specifically.

I would tell you, Mr. Miller, that we see no slackening at this time of armaments such as production of tanks and submarines. That doesn't mean that it will not produce them, but they are still continuing to modernize at an effective rate.

General **Vuono**. We have seen no signs that they have slowed down at all their modernization effort and their design bureau plans haven't changed any. So we know what—as the Secretary said, we have seen no lessening of his modernization efforts.

SEA AND AIRLIFT

Mr. **Miller**. In another area, you say we lack fast military sealift and both inter and intracontinental airlift to move men and equipment quickly and effectively. We didn't really hear that when we had the people in from Transportation. They felt that, as I understand it, that they were doing quite well. At least they didn't make the statement that we lacked this.

Secretary Marsh. If you were to ask me what were the most significant areas in which I felt there was the greatest shortfall, my response would be an inadequate airlift, both inter and intratheater, and inadequate sealift. We have certain commitments, we cannot meet the 10 and 10 requirements in ten days. We cannot do it because we lack the lift to do it.

I think what you have seen is a greater awareness of this shortfall with an effort to address the shortfall by increasing the fast sealift in the Navy and by production of the C–17 in the Air Force. But if you take the most minimal standards that we have to meet, which is 66 million ton miles, I believe, on airlift, we do not meet that, and we cannot control it in the Army.

And these are two areas over which we have no control, but over which we have enormous dependency.

General Vuono. I think the Transportation folks talked to you about how they see the future. There with the C–17, we see some progress, but today sealift and airlift are major concerns.

Overseas Stationing

Mr. Miller. Considering the budget restraint that we have and the fact that we have so many service members in Europe and the big discussions as to whether we should pull some back, does the Army consider sending single men overseas instead of men with families? And I bring that up because I read in one of the statements where in Europe we had constructed some 12,500 housing units, and that is additional expense, medical expense, a lot of expense for the families, is this something—I am not thinking of breaking up families. I'm thinking of sending single individuals, men and women, more of them on duty overseas to hold down expense.

Secretary Marsh. Let me begin by saying there is an awareness of costs that are related to our presence in both Europe and Korea and in other places, Panama, others. And the additional costs that are incurred by dependency which relate to housing, schools, and medical. It is an area the Army has given considerable thought to.

I know the Chairman, Mr. Murtha, has raised it orally several times with me and he has raised it in my presence with the Chief of Staff of the Army. He asked the Army to look at it; I have asked them to look at it. I know General Vuono has spent a good deal of time considering that. Maybe I had better let him respond to what his assessment is.

General Vuono. If you are talking about sending only single soldiers overseas, we could not meet our overseas commitment because of the large percentage of married folks that we have in the Army. Families provide a greater stability for our soldiers. If you said to the Commander in Europe, "Is family presence important?" He would probably say, "It is the highest item on the list of priorities for soldiers as far as being forward deployed." They provide high morale for the soldiers. There is more stability with soldiers when you have family members.

We have looked, as the Secretary said at unit rotations, rotation of units overseas. We have looked at it several times in 1985, and again a year or so ago. We are in the process of looking at it now after some discussions with the chairman.

Depending on how you set the parameters—in other words, what level of unit rotation you want to use, it varies in the costs and the savings, and it impacts favorably or not on readiness. So far our studies have shown there is not a great deal, if any, dollar savings by unit rotation. There is a difference on where the money is spent, but not necessarily an overall savings, if any.

There is the possibility that if you did rotate units, somebody will say, "If you rotate and don't have family members there, you can close out some of your installations overseas as a result of that."

As you dig into that, there is a problem associated with that, because even soldiers on rotational duty, single soldiers, have to have a certain amount of quality of life programs. Let's say we were to close facilities overseas, we would have to compensate that with facilities in the States wherever we were locating those family members. My point is that the dollar savings may be a wash. It is just a matter of where you spend the dollars.

The down side, as I mentioned, is stability, the importance of family members in terms of morale. But because of the interest that has been raised on that and because of our own interest in reducing costs, we are in the process of reviewing that whole area. We have been working on it for the past several months.

DEPENDENTS' COSTS

Mr. MILLER. Could you give us information as to what the dependency costs for overseas and here in the United States has been? On the increase since 1985, could you pick those figures out or furnish them for the record?

General VUONO. I will furnish them for the record.

[The information follows:]

Section 8125 of the Fiscal Year 1989 Defense Appropriations Act requires the Secretary of Defense to report total costs to support dependents accompanying Department of Defense personnel in overseas assignments. The Army is working with the other Services and the Office of the Secretary of Defense to gather and display the required figures. The report is due to the Committee on Armed Services and on Appropriations on May 1, 1989.

DRUG INTERDICTION

Mr. MILLER. There was one other area, Mr. Chairman, if I have time for it, and that is we have a drug czar now, and we know things may be shifting. The Army has been helping up until now. We know that you are not the people who would normally be involved, but we reach out to you for assistance. Can you tell us what you are doing at the present time and how much of your budget would be used for drug interdiction?

Secretary MARSH. Let me start and then ask Carl to amplify on it because I know that it is a matter under discussion in the JCS. Let me say first, one, there is an interest and concern that is shared in to DOD to try and be helpful in this area.

There is a question of what are the parameters in which we can be helpful. There is the difference between what you can do outside the United States as opposed to what you can do inside the United States.

You are far more restricted. You have the application of the statute that prohibits the armed forces from getting involved in arrests, which gives you the opportunity to look more at what role can be played by the National Guard because of their state status.

They enjoy a different capability. One of the concerns that the military has had and I think it is a legitimate one is there is an enormous effort to try and get the military involved in interdiction. We have fine capabilities in the intelligence field, reconnaissance, surveillance, radar, but interdiction in itself does not yield that much based on the effort.

The problem has to be addressed either at the source or in the market. Simply trying to interdict is not going to be sufficient. We do aid and assist interdiction but you have to watch levying on the military that role in such a way that it denigrates other requirements that they have.

There are instances where we have used in a very effective way helicopter assets but removing those helicopter assets from one area for use in the drug program also took away from some of the training requirements which were very necessary because of the area of the world that was involved in the use of air assault operations.

So the military does have a legitimate concern in that regard but I think we are seeing a significant effort beginning in the DOD and I think General Vuono can speak to that better than I.

General VUONO. I don't think anybody is more concerned about the drug problem than we are. As you know, we have a tremendously, I think, successful drug enforcement program in effect in the Army. We are very proud of how we have been able to reduce drug usage in the Army. So we are concerned with the national problem we have.

The Joint Chiefs have been given a mission of interdiction and surveillance and we have set up a command and control organization in conjunction with the Customs and the Drug Enforcement Agency and so forth within and we have given missions to various combatant commanders in and around the United States, CINCPAC, CINCLANT, southern command, and the NORAD command. They are in the process of tying in with the command and control headquarters so we can focus INTEL efforts along with surveillance and interdiction efforts.

The Army specifically has been involved in drug interdiction for a number of years, both active Army and Army National Guard. For example we have several of our Army personnel who are full time working with some of the drug agencies around the country.

Let me just give you some numbers that you might find interesting. For example in fiscal year 1988 the Army and the Army Guard flew over 5,000 hours in support of Federal law enforcement agencies on drugs. We have a lot of equipment that we have loaned out. We are doing a great deal of training for the various law enforcement agencies.

The Authorization bill last year has allocated some resources specifically to be used by the Guard in combatting drugs and they are in the process now of flying those missions. We take very seriously I believe our responsibilities in trying to assist in the whole area of trying to reduce as much as we possibly can the use of drugs and to bring drugs into this country.

Mr. MILLER. I asked a question of the Air Force and I received some of the same answers. They were and are using AWACS to some degree. They spoke of the training that was necessary and they would be taking their crews away from the training. But it appears, Mr. Secretary, with the helicopters you are talking about along with the Air Force and the AWACS, that this is live training. Why fly and train in one area when the troops could be utilized to interdict drug traffic and receive the training at the same time.

Secretary MARSH. I think you are quite right and I believe this is the approach that the JCS are pursuing of trying to incorporate drug suppression and program assistance with training missions.

General VUONO. As much as we can. There is not 100 percent correlation, but as much as we possibly can we are trying to get as much operational training as possible out of the surveillance mission.

Mr. MILLER. General, the figures—is it an appreciable amount of dollars that comes from your budget for drug interdiction?

General VUONO. Yes.

Mr. MILLER. Can you give us those figures?

General VUONO. I can give that for the record. Last year I think it was something like $20.8 million.

[The information follows:]

During Fiscal Year 1988, the Army contributed approximately $86 million to drug interdiction support to other federal agencies. $73 million of the $86 million was the value of equipment on long term loan, $11.2 million worth of helicopters were transferred to the Department of State, and $1.8 million in direct support to DEA operations in the Caribbean area.

Mr. MILLER. I would appreciate that very much.

General VUONO. That would include the training, the equipment on hold—you are asking for the whole amount.

Mr. MILLER. I have other questions which I believe should be asked this afternoon in closed session.

Mr. MURTHA. Mr. Livingston.

LAMP-H PROGRAM

Mr. LIVINGSTON. On February 7 in this committee General Schwarzkoff mentioned the importance of logistics over the shore in terms of sustainability for his command.

Could you review your assessments of the LAMP-H program versus what we currently have in our inventory to provide shore logistics missions?

General VUONO. LAMP-H is not a new program. We started it with a letter agreement I believe as early as 1982 and we had money in the budget for that. We are about to build a prototype so that we can give the CINC the capability he needs because what the LAMP-H will do for us is allow us to move heavy equipment such as the Abrams tank. It is a very high priority with CINCCENT and we are supporting him with that program.

Mr. LIVINGSTON. Are the Army's various commands currently able to meet their daily goals for providing support of sustaining deployed forces without that program? Let me ask you to submit that question for the record.

General VUONO. Okay.

Secretary MARSH. It depends on the area of the world. We are short on capability and we need more of it.

ANTI-ARMOR WEAPONS SYSTEM

Mr. LIVINGSTON. The Army has identified a requirement for an urban fighter and bunker busting weapon to be carried by the individual soldier. Do you still have such a requirement and how are you progressing in addressing it?

General PIHL. The weapon is a soft launch weapon and would be allowed to be fired in an enclosure in urbanized terrain so the AAWS-M provides tank killing ability to cities and towns. The Army has a requirement for a smaller system that the rifleman would use in a bunker busting and light armor capability. For light armor we have the AT-4 which we currently have in inventory. We are looking at a Multi-Purpose Individual Munition or MPIM, Program for both shoulder and rifle launched to round out that family of weapon systems.

Mr. LIVINGSTON. There is no request for funds in fiscal year 1990 or 1991 budget for that system?

General PIHL. That is correct for the MPIM system. When we looked at tank killing capability those systems that do not have kill capability for the modernized Soviet tanks, we did not send forward a request for funds.

We did a priortization and looked at our systems in terms of their size and lethality. In the case of the MPIM we did not accord it a sufficiently high priority to fund the system.

Mr. LIVINGSTON. Don't you need some mobility in the field to hit those type of targets?

General PIHL. Sir, we will have mobility in the field to hit hard targets. We will carry the Anti-Armor Weapon System-Medium on both the Bradley Fighting Vehicle in the heavy force as well as in the light forces that will deploy. That is a 45 pound weapon system that will be able to be fired by one man from an enclosure and will kill tanks out as far as we can see in terms of the threat.

Other munitions and hand held items that are less than that capability like a light anti-tank weapon, the old LAW, the AT-4 or the Multi-Purpose Individual Munition did not have that same tank killing capability.

Mr. LIVINGSTON. The AT-4 is not being procured at this time?

General PIHL. That is correct starting in fiscal year 1990. We will bring that program to a termination in the current five year defense plan.

Mr. LIVINGSTON. So it is a matter of money?

General PIHL. That is correct.

Mr. LIVINGSTON. What do you project downstream? Are we going to advance into some of these programs later on down the line?

General PIHL. Based on the opening statements and the exchange with the Chair in terms of projections, there would have to be an increased funding profile for the Army to consider putting those programs back into our budget.

Mr. LIVINGSTON. Does it also depend on the tests of current technology, and how are they advancing?

General PIHL. We are going to complete the Multi-Purpose Individual Munitions System proof of principle program and put that technology on the shelf. We will work the weapon system both in the shoulder and rifle launched variety and put the technology on the shelf. We are not going forward with development or procurement because no funds are available. We have solidified the requirement for the AAWS–M system and that is our most important priority to go forward with.

Mr. LIVINGSTON. What about the down-selecting to a single contractor? That is still in competition, right?

General PIHL. That is correct. The shoulder launched and the rifle launched MPIM are being looked at as a part of the on-going proof of principle. We will pick one and put that technology on the shelf.

HEAD WOUND RESEARCH

Mr. LIVINGSTON. Does the Army have any current research going on with respect to impact injury, brain damage from wounds in the field? I am aware of the project down in Louisiana, but is that vital research for the Army?

General PIHL. Yes, sir. We believe it is. We have a $1.7 million research contract for head wounds on-going at Louisiana State University.

Mr. LIVINGSTON. The Army does have a need to get the results of such research for the determination of possibly saving soldiers on the field?

General VUONO. Those kinds of wounds are devastating and anything that we can learn about head injuries will save soldiers lives on the battlefield.

Mr. LIVINGSTON. Has there been any significant research of that sort in the past?

General VUONO. I am sure there has been. I don't have the details at my fingertips, but I am certain there has been.

Mr. LIVINGSTON. Is this type of research necessary and critical to the saving of men in the field?

General VUONO. Yes.

Mr. LIVINGSTON. Thank you very much, Mr. Chairman. I will have some questions for the record.

[CLERK'S NOTE.—Questions submitted by Mr. Livingston and the answers thereto follow:]

LAMP–H PROGRAM

Question. We talked about how I feel the LAMP–H program could be important in addressing over the shore logistics. For the record clarify and expand the following questions I asked earlier.

What unique capability does the LAMP–H provide for Army forces?

Answer. The LAMP–H Heavy Lift Amphibian is the only craft capable of transporting cargo in excess of 25–30 short tons (e.g., the M–1 Abrams Tank and the Bradley Fighting Vehicle) across the beach for offloading in those areas of the world where commercial ocean ports are inadequate, unavailable or denied. The LAMP-H air cushion vehicle is capable of transversing 90% of the tactical beaches worldwide as compared to less than 25% for conventional displacement landing craft such as Landing Craft, Utility (LCUs).

Question. What do we have in our inventory now for over the shore logistics missions and how does that compare to what you are seeing in the LAMP-H program?

Answer. The current Logistics Over the Shore (LOTS) watercraft inventory is composed of conventional displacement watercraft, such as the Landing Craft, Utility (LCU) and the Landing Craft, Mechanized (LCM); the Lighter Amphibious Resupply Cargo, 60 Ton (LARC-LX); and the Lighter Air Cushion Vehicle, 30 Ton (LACV-30). Where prohibited by shallow gradients and poor bottom conditions (e.g., Southwest Asia (SWA)), the displacement watercraft cannot offload cargo over the shore without installation of massive beach interface systems (3000-5000 foot floating or elevated causeways) or extensive dredging of the beach approach prior to offloading arriving strategic sealift.

The LARC-LX is a slow, wheeled amphibian over 30 years old. An M-1 Tank cannot be offloaded in-stream onto a LARC-LX. A wheeled Amphibian such as the LARC-LX is not mission capable in SWA because of the poor bottom conditions there (mud, silt, and coral). The LACV-30 is an air cushion vehicle capable of operating in the SWA environment, however, LACV-30 payload is limited to 25-30 short tons and the craft cannot transport either a M-1 Tank or Bradley Fighting Vehicle.

The LAMP-H is an air cushion vehicle with a design payload of approximately 100 short tons. The LAMP-H can transport an M-1 Tank in normal operations or two M-1's under overload conditions. The LAMP-H air cushion vehicle is capable of transversing 90% of the tactical beaches worldwide as compared to less than 25% for conventional displacement landing craft such as Landing Craft, Utility (LCUs).

Question. Are there any other craft that can or will perform the logistics over the shore mission as efficiently as LAMP-H?

Answer. No.

The LARC-LX (Lighter, Amphibious, Resupply, Cargo—60 Ton) wheeled Amphibian is not mission capable. The LACV-30 (Lighter Air Cushion Vehicle—30 Ton) cannot transport an M-1 Tank or Bradley Fighting Vehicle. Because of the shallow gradients and poor bottom conditions in SWA and many other parts of the world, the displacement watercraft cannot off-load cargo over the shore without installation of massive beach interface systems (3000-5000 foot floating or elevated causeways) or extensive dredging of the beach approach prior to off-loading arriving strategic sealift.

The Navy developed Landing Craft, Air Cushion (LCAC) is an expensive assault craft and cannot perform either the Army or the Navy Logistics Over the Shore (LOTS) resupply mission. Because the LCAC, as an assault craft, is designed with high side walls to protect its crew and machinery, ocean ship cranes cannot extend far enough to off-load cargo from the ship to the LCAC, precluding use of the LCAC for the in-stream discharge of cargo required during LOTS operations. In addition to costing approximately twice as much as the LAMP-H to procure and operate, the LCAC is designed to be transported only in Navy-owned, gray bottom, wet well ships and it cannot be transported to the theater of operation on the commercial shipping that is available to the Army. Moreover, all the LCAC's, as well as all the Navy wet well shipping, is dedicated to support Marine Amphibious Assault requirements and cannot be safely diverted to meet other missions.

SUSTAINMENT OF DEPLOYED FORCES

Question. Are the Army's various commands currently able to meet their per day or daily goals for providing support or sustaining deployed forces?

Answer. The major Army commands are currently able to meet the following number of days of supply of prepositioned war reserve materiel based on daily goals of sustaining deployed forces ———.

Question. Please provide for the record the Army's short ton per day goals, in terms of providing support to deployed forces, at your major commands and what current capabilities actually are.

Answer. ———.

[CLERK'S NOTE.—End of questions submitted by Mr. Livingston.]

TROOPS IN EUROPE

Mr. MILLER. Could I ask a question that ties in with what we were discussing before about troops in Europe. Can you tell us how many troops we have in Europe at the present time?

Secretary MARSH. 217,000 Army and the troops level is higher than that. That is Air Force. The Army component, it is 217,000. That varies by a couple hundred.

Mr. MILLER. How many dependents do we have?

Secretary MARSH. I have a figure in mind but I would prefer to furnish it this afternoon or get it for the record.

Mr. MILLER. You do not have that, is that what I understand?

Secretary MARSH. I think General Vuono gave you about 164,000, 165,000.

General VUONO. 164,000 is the number of Army dependents in Europe. There are obviously more—these are command sponsored dependents and of course at any one time there's over one to one and half million folks in Europe other than those associated with the military. But Army has about 164,000.

Mr. MILLER. But aren't all those dependents a big problem in case of war, evacuating those people out of the danger zone?

General VUONO. Mr. Miller, we have very extensive plans that we exercise on a frequent basis for our family members in Europe. All of us having served in Europe have been involved in those plans.

We take it as a very serious responsibility to work those plans so that we can have a smooth evacuation of our family members. These plans are designed so that family members go quickly to certain locations within Europe for evacuation out of the country.

And some element of those plans are exercised at least on a monthly basis.

Mr. MILLER. Thank you.

Mr. LIVINGSTON. Mr. Chairman, one last question. I just wondered, General Pihl, if additional funding were made available, would the Army procure the MPIM system?

General PIHL. Yes, sir, we would.

ARMY RESERVE COMMAND AND CONTROL

Mr. MURTHA. Mr. Secretary, the committee corresponded with you last year concerning the command and control reporting chain of the Army Reserve. We would like very much before you are elevated or whatever happens, that you to respond to the following questions for the record.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

Question. One of the reasons the committee initially requested comments by January 15th was to have the benefit of your advice and counsel. Secretary Marsh, briefly explain your views on having the Chief of Army Reserve function as the component commander and of establishing a single reporting chain similar to the Air Force and Navy Reserves. Please elaborate for the record.

Answer. Our current U.S. Army Reserve command and control arrangements stem from our STEADFAST Reorganization efforts in 1973. As a result of that reorganization, U.S. Army Forces Command (FORSCOM) was established, and the CG, FORSCOM was placed in command of Army Reserve elements located in the United States. While certain adjustments have been made in USAR command arrangements since 1973, I believe the basic architecture has served us well over the past decade and a half.

However, our consideration of this issue must recognize that circumstances in 1989 are different from those in 1973. We should examine how certain changes in the environment have affected USAR command and control arrangements. Such changes include, for example, the development of our CAPSTONE training program under which Army Reserve and National Guard units derive their essential training tasks from those operational plans they would execute in wartime. Second, FORSCOM has acquired additional responsibilities as a specified command in addition to its role as an Army major command. Third, we have seen a growth in automation capabilities throughout our Reserves which may provide commanders the opportunity to expand their span of control.

The issue at this point is whether, in light of these changes, our current USAR command arangements will continue to serve the warfighting needs of our commanders into the future.

Question. General Vuono, would you express your views as well.

Answer. I am satisfied that the Chief, Army Reserve is currently granted sufficient authority commensurate with those responsibilities he is charged by law to accomplish. As Secretary Marsh pointed out, the issue is whether our present command arrangements for the Army Reserve will continue to serve the warfighting needs of our field commanders into the future. The requirements of our "users"—our commanders in the field—must be a major determinant of our conclusions on this issue. I am committed to a balanced, open-minded review of this question.

Question. Secretary Marsh, by letter of February 7th you indicated that you plan to look into the full range of issues surrounding this question and to provide the Committee with a full report by the summer of 1989. Mr. Secretary, I do not want this issue to become one of study, do nothing, and study again. Can you assure the Committee that this is not the Army's intention? The Committee would appreciate receiving this report by June 1, 1989. Do you expect any problems meeting that deadline?

Answer. This is a complex issue with far-reaching implications for readiness across the Total Army, and a truly thorough review will require five to six months to complete. I believe, however, that the results of our study can be available by Labor Day of this year.

Question. For the record, please specify what guidance and parameters you provided the Army Staff in requesting them to prepare this report.

Answer. I have approved the formation of a study panel that will be co-directed by two retired senior Army general officers. The study directors will be carefully chosen to ensure that the panel adequately reflects the perspectives of both the Reserve and Active components. This arrangement will provide our study effort the necessary degree of balance, expertise, and objectivity.

The objective of the study panel will be to determine which USAR command and control arrangement best supports the Army's ability, both now and into the future, to organize, train, and equip the Army Reserve to achieve Total Army warfighting readiness.

The study panel will, at a minimum, provide answers to the following major questions:

a. What key changes have occurred since the STEADFAST Reorganization in 1973 and how have these changes impacted on the USAR command and control structure?

b. What specific problems within the USAR have resulted from these changes?

c. What impact will projected long-range trends have on the USAR command and control structure?

d. What changes in current USAR command and control arrangements, if any, will improve: preparation for war; mobilization; resource management.

e. Why are command arrangements for the USAR different from: those currently in place for the ARNG? Reserve forces command arrangements employed by the other Services?

f. How will alternative USAR command arrangements impact on the Total Force Concept?

g. Should non-deploying USAR unit/activities (e.g. USAR training division) be transferred in peacetime to their wartime major commands?

h. What are the resource implications (costs and/or savings) associated with any particular changes?

In providing answers to these questions, the study panel will develop alternative USAR command arrangements and associated evaluated criteria. Among the options evaluated will be an arrangement that places the Chief, Army Reserve in command of the USAR.

[CLERK'S NOTE.—End of questions submitted for the record.]

Mr. Murtha. The committee will now adjourn until 1:30 this afternoon.

Afternoon Session

DESTRUCTION OF CHEMICAL WEAPONS

Mr. Murtha. The committee will come to order.

Let's talk, Mr. Secretary, about the chemical weapon demil at Johnston Island. Who has the responsibility for that?

Secretary Marsh. Let me mention, we have completed the chemical demil plant there. Some principal members of my staff talked to me at lunch. They had just visited there last week. They say it is an extraordinarily complex facility. It is functional, but we have not worked out the bugs with regard to computerization. It does engage in the demil process, but does not do it as effectively as it is supposed to when it is operating at an optimum.

They are of the view that it will probably be slipped at least three months, but we will know better as of the 17th of March. Shortly thereafter, my representatives will come and give you an update as to where they are, time detail and projected schedules as to when it will be completed.

In the meantime, we will start the construction of another facility like the Johnston Island facility. That will be built at Tooele, because 42 percent of the stocks that have to be demilled are at Tooele. Apparently the view of the people who are involved in this is that the baseline demil technology being used at Johnston Island is responsive. In all of this, we can give you a much better idea in another two weeks. The general feeling is we have confidence in that technique.

You raised the question about cryofracture. In the budget review of the army budget, the decision was made at Defense that the funds dedicated to the cryofracture program would be terminated and those funds will be available for the Army to reprogram.

I think one of the underlying concepts or theories regarding cryofracture is that it would not be completed in time for that technology to make a meaningful contribution to the demil program which we are mandated by law now to have completed by 1997.

We need several more years to fully test cyrofracture. So at this point in time, the program that the Army is following is the Johnston Island baseline concept.

Mr. Murtha. Is this an appropriate time to abandon cryofracture, before the Johnston Island plant goes into production?

Secretary Marsh. I would say to you, Mr. Chairman, I think the views of the experts that are handling that is that they have every confidence that the Johnston Island plant will be effective, that any of the problems that have been encountered are the types that you would normally find in bringing any new facility on line and that it will be able to handle the task. That represents the thinking.

The other view is that the cryofracture technology would not be obtainable in time to address the demil program by the time it is supposed to be complete.

This is information given to me. Maybe the Chief or General might want to amplify on what I said.

General Vuono. No.

RECRUITING AND RETENTION

Mr. MURTHA. I looked over your book called, "The U.S. Army Posture Statement, 1990–91." You talk about recruiting and retention.

Secretary MARSH. I will say to you, Mr. Chairman, that we are moving into a declining age pool which will bottom out in about 1994 or 1995, as I recall.

The area in recruiting where we have the greatest concern is in institutional advertising, meaning where the Army controls the advertising. We have lost significantly from our advertising budget which has impacted recruiting dramatically. We have also lost and need the Army College Fund applicable to the non-combat arms.

In the recent recruiting statistics that were in the press it showed an increase to about 11 percent of CAT IVs. We are of the view that when the end of the year comes by merging the contracts that are in the DEP with those enlistees that were walk-ins in the last quarter, we will probably finish the year around six to seven percent of CAT IVs.

Mr. MURTHA. How does that compare to where you have been the last few years?

Secretary MARSH. For three years it has been around the four percent mark. We do have concerns at the present time. They relate to our ability to provide the college benefits as a recruiting incentive. It relates to decreased funds for advertising.

It also relates to competition from the civilian market for jobs and a declining age pool.

General VUONO. As you recall, not only do we have it in our posture statement, but in my opening statement I made a strong pitch for quality of the force because everything we have going in our Army today, I couldn't be more emphatic about it, starts with the quality of the force.

We talk about 93 percent high school graduates today, four percent CAT IVs.

I think you recall the chart that we showed you where in 1980, those numbers were 54 percent and 52 percent and and we didn't have the quality Army in 1980 that we have today and it starts with that recruiting quality.

It is a slippery slope when you start shaving around the edges and reduce our capability to attract quality soldiers. Being able to advertise the Army College Fund as being available for all soldiers is key to that. The manpower pool is shrinking. The youth unemployment rate is going down. The category I to IIIA soldier is in a market where there is a lot of competition for them so we have to compete to attract them.

My recruiting commander tells me that if we don't get relief from the cap on the recruiting advertising budget, and most importantly, the Army College Fund for non-combat arms, that the CAT IV content that we are projecting in 1990 and 1991, based on our requirements, is going to be much higher than four percent. It may even be higher—it will be higher in 1990 than the six or seven percent. There is not a great deal of money involved in that.

As you know, that proposal has worked its way or is working its way from DOD to your committee. Yesterday we briefed the DOD on that proposal, and we have to brief one other individual up there, but they accepted and agreed with us that we should come forward with that request to have the Army College Fund back to where it used to be so it includes all soldiers.

Mr. MURTHA. It has always been hard for me to accept that we have to pay bonuses for people to stay in the infantry, and that we have to pay bonuses like the college program. When it was a wartime situation and you disrupted the person's ability to get a job and they were behind their peers, then that was one thing.

You know, of course, I am for the draft, that makes it easy. But with a volunteer service, you have to have some recruiting money. You get more than anybody else.

General VUONO. That is right, but, Mr. Chairman, our requirements are much greater than everybody else.

Mr. MURTHA. How many do you have to recruit a year in the Army?

General VUONO. 132,000.

Secretary MARSH. Then you also have to recruit—we recruit probably close to 200,000 a year when you count the Guard and Reserve. The Guard budget is not in the Army budget.

MARINE CORPS RECRUITING SCANDAL

Mr. MURTHA. I saw in the paper this morning that they had a recruiting scandal for the Marine Corps in Pittsburgh and relieved the officer who was in charge because they were falsifying the qualifications. The recruiters were doing this in order to get people into the service.

How do you guard against that kind of pressure? I know there is a tremendous pressure when your recruiters have a certain quota to fill.

Do you follow the recruit so that you know which command recruited him and whether he was able to make it through?

General VUONO. Yes. A few years ago, we had some difficulties in that regard in the Army. We have set up a system of checks and rechecks that has proved to be very successful in the past couple of years in terms of recruiting violations. But you can never relax.

As the pressure becomes greater on the recruiters to make their numbers, the more opportunities there are for these youngsters out there who are doing the recruiting to feel that pressure.

So you have to not only have the checks in the system, you have to have the right leadership to build within these recruiters a feeling that there is an ethical issue here that you have to make sure that you don't let it get out of hand.

ARMY COLLEGE FUND

Mr. MURTHA. Is the College Fund to retain people or recruit them?

General VUONO. It is to attract and retain. It is two years active and two years this guy will serve in the Reserve component.

Mr. MURTHA. If you have a two-year college plan, they get out—I know you have to get a certain number out.

General VUONO. What we have found is—and I don't have all the statistics—in general we found that the College Fund attracts, a lot of those kids who get out at the end of two years. Some stay in because they like it.

Some get out and go to college and we get them back as lieutenants in ROTC. Some get out of the active and go into the Reserves, for every youngster we get in the Reserves that is one less we have to train in the Reserves.

Secretary MARSH. There are estimates of as high as 40 to 45 percent of soldiers being separated that join either the National Guard or the Reserves. When you do that, you don't have to train that soldier in basic and advanced.

See, they have an IRR obligation. They may enlist for two years, but they have a significant IRR obligation after that.

General VUONO. It is two plus two plus four.

Mr. MURTHA. How much money do you need in the program? You said you need the cap removed. What does that mean?

General VUONO. We want to ensure that we are not restricted on the recruiting budget. The Army College Fund for non-combat arms, we were not asking for any additional money for that in the Reagan budget. However, we are looking to see what other help we may need.

As a matter of fact, we would like to get authority to start that immediately in 1989 and not wait until 1990.

Secretary MARSH. Mr. Chairman, we have surveys. We do extensive surveys in the age group of particularly 18 to 25. Our surveys show that there is a group of youngsters in this country who will not enlist in any program for a three-year tour, but they will enlist for a two-year tour because they are college bound, and there is a market there that we know we can get and we have tapped that market.

Mr. MURTHA. You say half of them go in the Reserves. That is the key. To enlist him and train him and give him a college education, what percentage of them get out the first time?

Secretary MARSH. What is the attrition?

Mr. MURTHA. Yes.

Secretary MARSH. As a general rule, 34 out of 100 solidiers remain in the service past their first enlistment.

Mr. MURTHA. So 66 percent of them get out?

Secretary MARSH. That is right.

Mr. MURTHA. Wouldn't you be better off spending that money on advertising and dropping the college program?

General VUONO. Then the quality will drop.

Mr. MURTHA. Is it worth having them for two years?

General VUONO. I feel strongly it is.

Secretary MARSH. They are required by law to continue to serve in some Reserve capacity.

Mr. MURTHA. They have to serve in a Individual Ready Reserve?

Secretary MARSH. They have an IRR obligation. We seek to enlist them in the Reserves and we have programs set up at the separation centers that do that.

We can track better those who go into the Reserves; those who go into National Guard units, we can enlist them at the separation center.

General VUONO. If you had testifying the Chief of the Army National Guard and the Chief of the Army Reserve, General Burdick and General Ward; General Ward would tell you that he strongly supports and needs the Army College Fund for combat service support soldiers because the requirement is two years in the active, two years in the Reserve, and four years in the IRR. It is that combat service support soldier in the United States Army Reserve that we need.

He would tell you that it is as important to him as it is in the active force.

Mr. MURTHA. Would you elaborate for the record.

[The information follows:]

The Department of the Army proposed test of a new two-year enlistment in noncombat arms military occupational specialties utilizing the Army College Fund as an incentive will provide trained and experienced high quality soldiers to the Selected Reserve. The proposed test, as currently structured, will require two years active service in addition to training time plus two years service in the Selected Reserve followed by about four years in the Individual Ready Reserve. Soldiers honorably discharged from the active Army, who do not serve with a selected reserve unit, would lose the Army kicker portion of the Army College Fund. Military Occupational Specialities selected will be combat and tactical support skills with significant active component and selected reserve requirements. This program should result in decreased reserve component recruiting and training costs in the future as vacancies are filled with bright, trained, and experienced soldiers. This test program is supported by the Army Reserve and Army National Guard.

RECRUITING BUDGET

Mr. MURTHA. With the pressure we are going to have on the budget this year, this is a program—the recruiting and college program and so forth—that is very expensive. It worries me a little bit.

General VUONO. If we want to have the kind of Army that is flexibile, the kind of Army that people like Marshal Akhromeyev when he visited told me the single thing that impressed him when he visited is the quality of the soldier.

When our friends expect that kind of Army, we have to attract that youngster. Our advertising budget, for example, is the lowest it has been since 1984.

Mr. MURTHA. But it is five times as high as the Air Force.

General VUONO. But the Air Force doesn't have nearly the numbers we have to bring in nor do they have the challenge of getting the kind of soldier we need.

If you look at the propensity to enlist and it is improving all the time, but the Army has always had a tougher time because of the image of the Army, the ground soldier, which I think I am damned proud of, but it is tough and you have to work to attract those kids and we need these programs to help us.

Mr. LIVINGSTON. Having just shopped the programs in the last year, I will tell you that the Army does have the best college program, and the best educational benefits by far of any of the other services and that speaks volumes when you start comparing apples and oranges.

General VUONO. What we are asking is help on that.

Mr. MURTHA. They sure work at it, I will tell you that much.

General VUONO. Mr. Chairman, I would close by saying that I list a series of priorities when I talk about the requirements for a trained and ready army. I say that they are not in any order except the first one, to attract and retain quality men and women, soldiers.

Mr. MURTHA. You are only retaining 34 percent, though; that is the problem. Of course, in the total force I suppose you are retaining a higher percentage.

General VUONO. Yes, sir.

Mr. MURTHA. Mr. McDade?

AMMUNITION PROCUREMENT

Mr. McDADE. Thank you, Mr. Chairman. General, I want to chat with you about the ammunition procurement budget.

From fiscal year 1988 through fiscal year 1991, the Procurement of Ammunition appropriation is slated to decrease by more than one-third, from $2.3 billion to $1.5 billion. As a percentage of the total Army procurement budget, it decreases from 15.1 percent to 9.9 percent. Why does the Army give ammunition procurement such a low priority, both in absolute terms and as a percentage of the total Army procurement budget, especially when the CINCs continue to warn us about sustainability problems?

What is the reason for this cut?

General VUONO. Well, I don't like that any better than the CINCs do. You know, if I had the resources, I would put it into ammunition. What we had to do is balance where we put our money based on the level of resources we had available. Readiness and sustainability had to take a share of that reduction.

What we tried to do then within the sustainability account is look at the kind of ammunition that we needed for our combatant commanders and what we tried to do is say all right, technology has given us a hedge on such and such a kind of ammunition, be it smart munitions and resource those, and those ammunition lines that were not as critical as others is where we reduced.

So I don't like what we had to do with the ammunition line, but given the affordability problems that we had, I think we have made some conscious decisions and the right decisions for funding.

Mr. McDADE. It doesn't reflect a decrease in the assumed threat, a decrease in training requirements, or a decrease in the calculation of war reserve requirements?

General VUONO. No.

General PIHL. Sir, in the ammunition area, we have reached $1.5 billion in the 1990 budget request. We wouldn't want to take it any lower than that given the need for sustaining our rounds.

The critical aspect of ammo now is that we are shifting from what some refer to as the older dumb munitions into the new smart munitions. We should be able to achieve lethality on the battlefield with a lesser number of rounds so you will see some drawdown in our stocks.

Mr. McDADE. You may get more lethality, but you are paying more for the smart munitions?

General PIHL. Yes, sir.

Mr. McDADE. What would be the specific impact on training and war reserve as a result of the fiscal year 1990 and 1991 budget on ammo?

When you cut back, it seems to us that you are going to impact training and war reserves. What is that going to be as a result of the 1990–1991 budget?

General **Pihl**. We will increase the number of war reserve rounds that are consumed in training, sir.

General **Vuono**. In other words, we will fund the ammunition for near-term readiness.

There will not be a degradation in near-term readiness training as a result of reduction of the ammunition accounts.

Where you will see a reduction, we will not meet what we wanted to meet in terms of days of supply for war reserves.

We have tried to make conscious decisions within that category to provide the supply for the most critical ammunition.

Mr. **McDade**. How much of a supply should you have and where will you be in war reserves?

Put that in the record.

[The information follows:]

If we had the resources, we would buy ammunition to meet defense guidance, or ——— of supply of preferred munitions by the end of the FYDP. With the FY90/91 budget, we achieve in aggregate terms ———. Overall, the Army's sustainability will decrease somewhat primarily due to an increase in the number of weapons systems supported, without a proportional increase in ammunition.

TANK AMMUNITION

Mr. **McDade**. We see a lot of changes within the 1988–91 budget. Artillery ammunition in 1988 was 40 percent of procurement while in fiscal year 1990 and 1991, it goes down to 31.5 percent and 20.1 percent.

Tank ammunition, on the other hand, goes from 18.4 percent in fiscal year 1988 to 23.4 percent and 28.3 percent.

What accounts for this dramatic change in your priorities?

General **Pihl**. We have determined that lethality vis-a-vis the Soviet tank fleet is our number one objective. We want to be sure we can kill their tanks.

When we fielded the M1A1 with the 120 millimeter gun, we fielded it with ——— of the kinetic energy penetrating round.

We have put a very high priority in this so-called armor/anti-armor crisis in order to make sure we can kill threat tanks.

In the future, artillery ammunition reflects a shift into more smart munitions such as SADARM, and not the M483 DPICM that we have.

We are bringing on the base burn round for the 155mm and we have also shifted into the MLRS rocket system.

There has been a conscious shift to keep the tank round up and highly prioritized and due to affordability, there has been some reduction in artillery.

Secetary **Marsh**. Sometimes days of supply drop when the ammunition stocks remain in the same because of the addition of new weapon systems, new artillery systems. As you introduce more units, the stocks of ammunition are divided among more units and, therefore, days of supply drop, but the number of delivery pieces actually increased. ———. We have been firing a lot of that ammunition up as part of our training.

ARTILLERY PROCUREMENT

Mr. McDADE. We are not procuring a lot of artillery pieces, are we?

General PIHL. Just the Multiple Launched Rocket System. We are product improving the M109s that we have in a program called the Howitzer Improvement Program.

Mr. McDADE. The bottom line is you are not buying artillery.

General PIHL. We are not buying tubes; no, sir, other than replacement programs, such as the M119.

Mr. McDADE. What is our war reserve and training posture for tank ammunition compared to artillery ammunition?

If it is not readily there, put it in the record.

[CLERK'S NOTE.—Classified insert removed.]

Mr. McDADE. In the fiscal year 1989–90 time frame, production of five different artillery rounds is slated to end.

Have we reached the required days of supply for these rounds? If not, why is production stopping?

General PIHL. I think the centerpiece of that is the M483 DPICM 155mm round. We are now going to go forward with the M864 baseburn DCICM round as a longer-range artillery round.

One of our goals is to not be outranked in terms of field artillery. So essentially we have a more modern round than we had in the M483.

Mr. McDADE. Does it look as though you are going to have further reductions to the ammunition procurement budget as part of the Bush budget changes?

General VUONO. I can't give you a specific line item, but I am concerned that we have about taken it down as far as we can afford—we are further than we ought to be so we are going to look carefully at trying not to take any more out.

I can't give you a definite answer.

Mr. McDADE. You made a submission to OSD reflecting generally what you just said?

General VUONO. Yes, sir.

Mr. McDADE. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. AuCoin?

TANKS

SOVIET TANKS

Mr. AUCOIN. Thank you, Mr. Chairman.

General, I would like to ask a couple of the questions we couldn't cover in open session this morning.

We were just talking about tanks, so let me go to that turret-less tank question that I asked this morning. I really have been seeing articles popping up randomly about the Soviets having such a tank under development and even a few reports that turret-less tanks have been deployed over there.

How close are the Soviets to deploying turret-less tanks?

General VUONO. ———. We expect to see that tank fielded ———. We call it the FST–2.

What we have done in order to ensure overmatch for that tank is to come forward with a request for Block II improvements to the

Abrams, because what we are trying to do with our heavy force modernization plan and in the whole armor anti-armor business is to get overmatch over the Soviets and retain that overmatch as the product improves.

We think we have got a plan within the funding levels that allows us to do that.

That tank that he is producing, what you call turret-less, we call it reduced volume, he is planning on fielding it ———.

Mr. AuCoin. What is the advantage to that?

General Vuono. It gives him greater survivability, a lower silhouette.

General Pihl. Sir, the goals of all countries who produce tanks, both threat and friendly, has been to get the crewman below the turret ring and into the area behind the armor packages that they have.

We have also explored a turret-less tank with an elevated gun as a paper design concept, but have found that the ability to do that mechanically has been beyond our technology at the present time.

Mr. AuCoin. The Soviets seem to have a technological capability to produce something that we don't?

General Pihl. No. We will end up reducing the volume in our turrets before we go to an elevated gun.

Mr. Murtha. Would you clarify what you are talking about, a turret-less tank?

General Pihl. If you could picture a tank with just an arm and a gun on it, and that is the only thing that would be above a mound of earth, the guns would be doing the fighting and there would be no people in the way of bullets.

The goal would be to elevate the gun so it could fire and the crewman would be someplace remotely engaged in the battle. Tanks are still going to fight tanks. As you are looking at going to automatic loaders, at going to high-technology rounds, longer penetrators, greater blast effect, all of us are trying to survive a shot from another tank.

But the human being is the person who applies that steel on target and that is why we still have crews. Eventually, we will evolve away from the crewman being in the loop, but we haven't gotten far enough to say our Block III tanks are prepared to take the crewman away. We are going to reduce the volume and shrink it down so there is less presented area. We will reduce a crewman on the tank and go to an automatic loader. We are doing everything we can to provide armor protection around the soldier who is still in the loop.

BLOCK II TANK PROGRAM

Mr. AuCoin. What does the Block II program do to provide overmatch?

General Vuono. It gives lethality and survivability capability with operational and fightability improvements.

General Pihl. It separates the commander from the gunner's sight so that each of them are in a target acquisition mode. It gives the commander stationed on the M1 tank an independent thermal viewer.

Secondly, it improves the armor package, the depleted uranium package we have in the tank now, and makes that a tougher target.

It puts automated data processing and target acquisition devices into the tank so we can compute the fire-control solution and fire more rounds quicker so you can kill an enemy tank and "service more targets" as the term is used.

ROLE OF HELICOPTERS

Mr. **AuCoin**. The question of where Stinger-like technology is taking us in terms of helicopter—the use of helicopters in combat, the Soviets now have an SA–14, which is that type of weapon they are working on higher-quality missiles with a Stinger-like capability.

We got into that this morning. My question this morning was, what does that trend tell us about the utility given what we have seen in terms of the devastating results of the Stingers to Soviet helicopters in Afghanistan? What is the role of the helicopter with these developments in the future?

General **Vuono**. I think the helicopter has got a very important role today on the battlefield and will tomorrow.

The first thing it tells us is the Soviets aren't very good at helicopter tactics.

If you talk to anybody who has been in Afghanistan and you get any reports back, they will tell you that the Stinger was effective because it is a good system and also because the Soviets lacked nap-of-the-earth tactics.

The first thing is we practice all the time is nap-of-the-earth flying.

As we go to the LHX, we have built into that system a means of acquiring the missile and then through countermeasures, jamming it. ———.

Mr. **Murtha**. Do the Russians have a Stinger, a comparable weapon?

General **Phil**. Yes, sir; they do.

Mr. **AuCoin**. Have you tested that jamming capability against the advanced Stinger?

General **Phil**. ———.

We have not run an actual physical experiment.

Mr. **AuCoin**. With no LHX program, though, are we are going to be in trouble?

General **Phil**. Sir, that would be very serious.

LHX HELICOPTER

General **Vuono**. That is one of the reasons that we are so much involved in ensuring we get the LHX.

Mr. **AuCoin**. I worry about what the budget environment is going to do in terms of delivering that for you.

General **Vuono**. We have kept the aviation modernization plan on track in the budget that we had sent over here.

We have also worked very hard in our amended budget submit to keep the aviation modernization program on track. As you know, that modernization program calls for near-term capability and then

R&D for the future. Within that plan, we may have to make some adjustments inside it, but the basic concept we kept alive.

Mr. AuCoin. The countermeasures you are talking about include ———. What percentage of the solution to this threat comes from jamming?

General Phil. Sir, if you were acquired—right now, ———.

Mr. AuCoin. ———?

General Phil. ———.

Mr. AuCoin. Is it possible to use that capability on Apaches?

General Phil. It is.

Mr. AuCoin. Will this move independently?

General Phil. In aircraft survivability equipment, which is a box that does both the acquisition of an IR missile as well as the jamming, we can apply that system to all of our existing helicopters.

The difference between that and an LHX is the reduced volume and acquisition of the target in the first place.

So if you are in a scout helicopter like the LHX, which we want to replace the aging Cobra and the unarmed OH-58A and Cs, as we reduce the inventory by 2,000 helicopters, we are only going to put the improved ALQ-144 jammers in those helicopters that will remain after the retirements.

So they will definitely go into Apache, into Black Hawk, and the AHIP will be provisioned to accept then.

Mr. AuCoin. What is the budget picture?

General Phil. In 1989 for 192 improved systems, we have $9.3 million; 1990, 219 systems, $5.8 million; 1991, 109 systems, $4.9 milion; and a mod line of $11.2 million for 688 systems in fiscal year 1989 and $5.5 million for 447 systems in fiscal year 1991 to improve our fielded jammer to the new production configuration.

But given the threat, frankly we are behind in our aircraft survivability equipment in terms of the missile threat and we have to catch up.

Mr. AuCoin. Did the Army seek more than that?

General Phil. Sir, I don't know.

I can supply that for the record.

[The information follows:]

The Army sought $5.5 million in fiscal year 1990 and $9.1 million in fiscal year 1991 for procurement of modification kits. OSD shifted these funds to the right one year because of concerns relating to funded delivery periods.

Mr. AuCoin. Back to tanks, one of my staff people recently visited an Israeli tank battalion commander on the Golan Heights and the Israeli officer claimed the gun and the ammunition on their converted Centurion tanks had been modified to give 5,000 meter effective range against Soviet tanks, and the implication was that included the T-72.

Do we have that kind of range and do the Israelis know something that we don't? I found that remarkable.

General Pihl. Not at all. A tank round will fly for 20 miles, so the only question for long-range gunnery is training of the crew and the ability to acquire the target.

We have looked at the Israeli long-range gunnery experience that has come from the Golan and it is embedded in our training at Fort Knox. I believe the U.S. tank corps is on a comparable basis.

HELICOPTER SPEED

Mr. AuCoin. Back to helicopters for a second, and this is the last question.

Some of the new Soviet helicopters, I am thinking of the Havoc and the Hokum, are reputed to be faster than anything we have got deployed, or in development for that matter.

I have seen some reports that mention a 200-mile per hour speed. I guess one of the questions I have is whether that is true or not—I don't know if you can tell me if that is true or not—but is that kind of speed useful in helicopter combat?

General Pihl. To clarify, the Havoc will do ——— knots; the Hokum ———. That compares to LHX at 170 knots.

Dash speed is terribly important to a combat helicopter, but they have not achieved speeds at the present time that we cannot achieve with LHX. That is as compared to the Black Hawk, which goes 175 and the Huey which goes 110 knots.

Mr. AuCoin. Do you lose maneuverability with that kind of speed?

General Pihl. Yes, sir. However, maneuverability is a function of speed, design and weight. Our smaller, fast helicopter will maneuver competitively.

You have to slow down to maneuver, when you are hovering out of ground effect and you are down at nap of the earth. But there is a point in time in the battle when you have to get from point A to point B quickly in a helicopter to reduce your time of being shot at.

Mr. AuCoin. I guess what I wonder about is whether the Soviets are gaining an advantage by moving to higher speeds and I guess you are telling me they are.

The second question I am trying to sort out is whether we lose so much in maneuverability if we try to chase them with those speeds that we end up with an airframe that really can't pull fast turns like I think helicopter combat really requires.

I guess we are in a mode of just opinion sharing here.

General Pihl. Yes, sir. My views are that that is the real case for LHX and how important it is as an armed reconnaissance helicopter.

The AHIP is a great program for scouting. We have it now. We are going to build 375 of them, but if you look at the OH-58 on a 4,000-feet elevation, 95-degree day, and you arm it with the Hellfire missile system and Stingers and put a full mission load on it, you are flying the helicopter right at the stops.

That is why we need a modern, fully-integrated helicopter that rivals the Hokum and the Havoc in the near future.

Mr. AuCoin. Thank you very much.

Mr. Murtha. Mr. Miller?

Ten Ton Trucks

Mr. Miller. Thank you, Mr. Chairman.

The fiscal year 1988 Authorization Act required the Army to purchase 4,737 HEMTT ten-ton trucks, and up until now there are about 3,000 that are purchased, and yet we find nothing in the 1990 budget that would allow additional to be purchased.

Can you explain that for us?

General PIHL. Sir, the ten-ton truck program, the HEMTT, and the 4,737-truck requirement was in competition from an Army perspective with the palletized loading system and other higher priority systems.

We, the Army, would prefer to bring on the palletized loading system which handles a standard 16.5-ton flat-rack because that provides the capability we need to improve ammunition throughput logistics.

Ammunition resupply done by flatracks is preferred to handling ammunition with manpower from the back of a HEMTT truck.

We have in the 4,737, as you look at our ammunition logistics capability with a palletized loading system, an excess procurement of about 2,200 trucks.

That is not to say that we can't always use HEMTTs. The Bradley battalions with their fuelers and their resupply vehicles could use the HEMTT truck, but in terms of affordability, we didn't fund the remainder year of the 4,737 program in favor of funding the palletized loading system and other higher priority systems, and we have sought legislative relief from those two years worth of directed procurements.

CHEMICAL WEAPON DESTRUCTION

Mr. MILLER. Let's discuss chemical warfare for a few minutes at least. You had a plan that apparently was disregarded in order to destroy the chemicals.

I am not sure whether your plan was given up, but are we still moving to destroy the chemical stockpile?

Secretary MARSH. There is a proposal to carry out the congressional objective of destruction of chemical munitions under what is called a baseline plan. The first disposal plant has been constructed at Johnston Island and is about to become operable.

They are seeking to get certain kinks out of the system that relate to the amalgamation of the computer control system and the destruction capabilities of the plant which will probably slip several months, at least several months, the full-scale operation of that plant.

As I indicated earlier, we are having a group of people come back from Johnston Island 17 March to give us time lines and target dates for the operation of the plant.

We believe it is an effective system that will be responsive and also pursuant to a congressional directive we are replicating that plant at Tooele Army Depot where there are based 42 percent of all the chemical munitions that must be demilled and that destruction, I think, begins this summer in July.

There is a second method of chemical demil called cryofracture in which this committee had indicated an interest. The cryofracture concept or program in a Defense Department decision denied funds for that purpose and the Army was told to take those funds that were aimed at that process and direct those funds in a reprogramming to other Army needs.

So you have the two. One is baseline and the other is cryofracture.

We are proceeding on the baseline at the present time.

Mr. MILLER. Cryofracture seemed to be high on the Army's list as a method of destruction. Was that changed by the Army or was that changed by someone else outside that gave instructions to the Army?

Secretary MARSH. A decision was made at Defense. We are merely an Executive agency. We perform this function for the DOD and demil all the munitions of all the services and the decision was made at Defense to not use and expand the cryofracture funds that were, I think, in last year's budget, around $16 million, if I am not mistaken.

I think there were indications that influenced that raised questions as to whether or not the cryofracture technique could be developed and be made effective in time to address the demil problem within the time constraints that have been imposed by the Congress.

Mr. MILLER. Can cryofracture be used for destruction of conventional weapons also?

Secretary MARSH. I will defer to General Pihl on that.

General PIHL. I think you can dip it into a liquid nitrogen bath and freeze it. However, we are not sure that you can safely fracture and inundate conventional munitions, that contain far more explosives than chemical rounds.

ARMS CONTROL

Mr. MILLER. I read where you are talking about arms control as an increasingly important challenge and next week the United States and its NATO allies will open negotiations with the Soviet Union and its Warsaw Pact allies on conventional armed forces in Europe.

If you had the opportunity, how would the Army like to see those talks shaped and arrangements made to dispose of certain items or do certain things?

I am sure that you have your opinion, and you have a right to express it.

General VUONO. Well, we have an opinion and we have expressed it. We believe that the end game ought to be parity of capabilities between the Warsaw Pact and NATO, not just a reduction in so many tanks or so many aircraft, but parity of capabilities, capabilities in terms of reconstitution, in terms of location of equipment, parity of capabilities in terms of reinforcement times recognizing where the United States is located as a member of NATO and where the Soviet Union is located as a member of the Warsaw Pact.

Having said that, we believe that it is critical that the Soviets, after asymmetrical reductions reach a point where there is parity with NATO.

They have got a long way to go before there is parity of systems between the Warsaw Pact and NATO. The General Secretary made a speech about that at the United Nations, but even if he takes out everything he has indicated he was going to take out, the Soviets still have a significant asymmetrical edge over the NATO nations, something on the neighborhood of 2.5 to 1 when you are talking about tanks, for example; something like two to one in terms of artillery pieces.

So I would like to see an agreement on parity of capabilities; and that the Warsaw Pact would reduce asymmetrically so there is parity; then we would negotiate from that level down what percentage of further reductions we could take, whether that is 90 percent of current capabilities, 80 percent, whatever that might be.

I believe if we don't take that kind of a position, we could find ourselves in a position after we had some agreement that would not lead to security and stability in Western Europe, which also influences the security and stability in the United States.

Mr. **Miller**. Since we are both, the Soviets and the United States, spending so much on defense—in our case, about a third of the budget—is it possible to scale down the military forces through treaty, through negotiations, in order to reduce military expenditures and still have parity? Is it possible to go much lower than where we are, at 25 percent of where we are right now, and still stay within range?

General **Vuono**. I think it would be very difficult to sit here and try and determine whether we can go to 25 or 50 or 75 percent. I think we have to try to get the Warsaw Pact down to parity and then the tough negotiations would take place from parity down to some level that would still achieve our ultimate goal, which is security and stability over there, and I believe that means some kind of a deterrent capability forward deployed.

But I am not prepared to determine what that number is right now, Mr. Miller.

Mr. **Miller**. In other words, you are saying down to parity at this point in time?

General **Vuono**. That is right.

Mr. **Miller**. Thank you, Mr. Chairman.

CHEMICAL WEAPON DEMILITARIZATION

Mr. **Murtha**. Mr. Livingston.

First, I want to be certain I understood your answer, Mr. Secretary, about the chemical weapons. Are we on schedule for the destruction of those old weapons?

Secretary **Marsh**. I think we are generally on schedule. I think there is going to be a slip at Johnston Island of three to four months.

I could give you a much better answer after the people from Johnston Island come here for a meeting 17 March to address that subject. People who have gone there and worked with them in the last week from our staff came back feeling very encouraged about the process, but do believe there will be several months' slip before it becomes fully operational.

Mr. **Livingston**. When can we safely assume that all of the dangerous, unusable chemical weapons of the past will be destroyed and no longer a threat?

Secretary **Marsh**. I believe the congressionally mandated deadline on that is 1997. However, you had had an earlier deadline and had slipped it to 1997. Right now the goal is 1997.

Mr. **Livingston**. On the basis of what we know now, is there any possibility that things might go awry? I want to know how safe that process is going to be.

Secretary **Marsh**. I think the work that has been done in that field and the techniques that have been developed, the computerization and the automation, that it is a very, very safe process.

I think we had a pilot at Tooele and that pilot met all our expectations on safety and handling of conditions. General Pihl might want to amplify on what I have said.

General **Pihl**. We have the munitions stored at several locations. Of course, it is a national problem that we have to tackle.

The capability at Johnston Island is the same design as we had at the Tooele pilot model. It has been proven. The question is the volume of munitions.

Mr. **Livingston**. One of the problems is actually transporting the material to Johnston Island, isn't it?

General **Pihl**. We plan to transport our stocks stored in Germany to Johnston Island. Several problems need to be worked out.

Mr. **Livingston**. Have we got that licked?

General **Vuono**. It depends where you are moving it from. There are some fairly significant environmental impacts.

Mr. **Livingston**. Plus PR problems?

General **Vuono**. You are talking about moving it from overseas and destroying it where it is stored in CONUS. Some sites in the States want it moved. This gives us public relations problems.

Mr. **Livingston**. We haven't solved all those problems?

General **Vuono**. No, but I think we have a good plan. We know what we have to do.

One of the biggest difficulties would be making sure that we work through all environmental considerations and impacts.

Mr. **Livingston**. Do you anticipate that that kind of problem will cause us to shove back the 1997 deadline?

Secretary **Marsh**. You can't say—I don't want to say that it will, but you can't say it won't because frequently you end up in litigation and when that happens, you have no control over it.

We have adopted a national plan for on-site destruction where we build facilities on the site so we can avoid transportation within the United States.

Mr. **Livingston**. My friend Larry Hopkins has worked on that. I really think this is a very serious problem and I wish you well, and I hope you keep us advised as to how we can expedite the process, because I think the sooner that this material is gone, the better off we will all be.

Thank you, Mr. Chairman.

RESERVE COMPONENT AUTOMATION SYSTEM

Mr. **Murtha**. Mr. Secretary, do you want to comment on the reserve component automation system?

Secretary **Marsh**. I will have to ask General Pihl to speak to that. I am familiar with the issues. I believe it is being remedied.

Mr. Murtha. As I understand it, the Secretary had an agreement with the former Chairman that you were going to take a personal interest in this thing.

Secretary Marsh. And that happened.

Mr. Murtha. So General Pihl has been delegated to handle it? Please explain where we are.

General Pihl. Sir, at the present time for the reserve component automation system, we are working with a contractor in terms of the functional description to provide the automated capability for reserve mobilization.

We have a draft RFP that will be out in June. We will have the contract out in the period of time by 1992 to provide the automated capability.

There may be some concern that there are two years absent in terms of our procurement budget and the reason for that is, we are right now not ready to procure the system. We are in the design phase as far as the automation is concerned.

Mr. Murtha. Is it fully funded in your FYDP?

General Pihl. It is not fully funded in the FYDP.

Mr. Murtha. You are delaying this program again?

General Pihl. Sir, we have slowed the program to make sure that our design is procurable.

Mr. Murtha. How long have you been working on this?

General Pihl. Sir, we have been working on the problem of automating the reserve components for a long time.

Mr. Murtha. ———?

General Pihl. ———. In 1988, the Chief of the National Guard Bureau was put in charge of this procurement. We in the Army procurement activity that I represent are assisting him in obtaining this capability.

Mr. Murtha. It looks like we have got two problems here. One is the reserve commander has a command problem which the Secretary is going to report on and give us something for the record.

Secretary Marsh. That is a different thing.

Mr. Murtha. I understand. We have two separate problems. The other is ———. How critical is this? Is this a couple-day difference or a month? What is the problem?

General Pihl. We will have to find out for you.

[The information follows:]

U.S. Army Forces Command (FORSCOM) prepares and executes plans for mobilization of Army reserve component units. Mobilization execution is decentralized to successive levels of command, with National Guard Bureau, all Continental United States Army, installation, State Area Command, and Major United States Army Reserve Command headquarters and individual reserve component units executing preplanned actions. Installations designated as mobilization stations and state-owned mobilization stations receive, fill, support, train, validate operational readiness, and direct unit movements to their ports of embarkation.

Units receive notice of pending order to active duty through command channels. Between alert and departure for the mobilization station all administrative, logistical and training requirements are identified to speed the units' transition to active status. While units are preparing for movement to the mobilization station, mobilization stations are examining unit personnel and equipment status. This information is then used to cross-level soldiers and equipment to ensure early deploying units are mission capable and to identify actions required to make follow-on units mission capable. A complete inventory of organizational clothing and equipment is conducted and shortages are identified. Personnel, finance, and medical records are screened and updated. Requirements for billeting and rations are determined for home station and the mobilization station. Unit status reports are updated and training requirements are determined based on the unit's Mission Essential Task list.

Detailed requirements and procedures for mobilizing a unit for active duty are prescribed in the Forces Command Mobilization and Deployment Planning System, Volume III, Part 3, Reserve Component Unit Commander's Handbook for Mobilization and Deployment Planning.

General VUONO. I don't know the degree in terms of time that we are talking about specifically. Certainly the automated system, when we get it up and running, when it is efficient, is much better than a manual system.

RESERVE MOBILIZATION

Mr. MURTHA. Let me go back. We have got money problems. It looks like to me if we are going to depend more and more on the reserve, we are going to need to have an efficient way to mobilize them. Maybe I am wrong.

It looks like the Army is trying to kill the system. Maybe that is just because you couldn't come up with a system and now it is falling out because of lack of money, but it just seems to me if we are going to depend more on the reserve, we need a capability of mobilizing them in a proper time frame.

Is that accurate or not?

General VUONO. It is accurate. If we are going to mobilize, we have to do it in the right time frame.

Mr. MURTHA. So we need this system?

General VUONO. We need an automated system for the reserve component.

Mr. MURTHA. You have already been appropriated $200 million, is that right?

General PIHL. Yes, sir. We have had some false starts on this program and it is not a pretty story. But I would say, Mr. Chairman, since 1988, when we have appointed a reserve general officer to run the program as program manager, and an intense scrutiny on the program to include the concept development phase we are in right now, we will I think with some confidence, field the program and start procuring it in 1992.

Mr. MURTHA. I am not as worried about an imminent mobilization, with the world situation the way it is with our improved intelligence and everything. I think we have a little more time right now today than we had a little while ago. But I am concerned about this program. There is $200 million available, and nothing seems to be happening. I can't quite follow that.

Where would you say we are right now?

General PIHL. Sir, at the present time we are trying to design a capability that will meet the commander's needs in the Army, and I won't call that a critical concept development phase, but we are in an intense review of the functional description and I see a capability that will be put into those armories as long as we and JAYCOR the contractor, can come together and produce this system.

Mr. MURTHA. We never used to have computers. Why can't you just keep people's names on files? They get on the phone, they call them and they mobilize.

General PIHL. The reserve component automation system includes telecommunications, distributed data bases and distributed data processing, so it is not unlike any business proposition in terms of putting modern business practices into the ability to mobilize.

Mr. MURTHA. Can't you just make a phone call to commanders and tell them to mobilize? I don't see why this particular system is critical. Maybe you are right, maybe you killed it inadvertently and you were right trying to kill it.

General VUONO. I don't think we ever tried to kill it. I think we have had, as General Pihl said, not a very good story. But just as we believe there has to be more automation in the active Army, we think there has to be more automation in the reserve components.

I think automation for the reserve components is important. I think it is more than just calling them up. It provides a more efficient operation if we get it right.

Mr. MURTHA. Mr. McDade.

M-1 TANK PRODUCTION

Mr. MCDADE. Thank you, Mr. Chairman.

General, as you know, the Reagan budget calls for an M-1 tank production rate of 516 vehicles per year, down from a peak of more than 800 vehicles per year. The budget also includes funding in fiscal year 1990 and 1991 for layaway of the Detroit tank plant. What is the rationale for these decisions?

General VUONO. We have two plants at Lima and Detroit. When we looked at availability of total program dollars and what would be in terms of priorities in our best interest, 516 is what we came up with that we could fund.

You need 576 to keep both open and if it becomes a choice of what gives you the greatest capability, Lima gives the greatest capability.

Mr. MCDADE. What is the minimum sustaining rate at Lima?

General PIHL. Five-hundred and sixteen.

Mr. MCDADE. What is the mobilization rate at the same plant?

General VUONO. Seventy-five per month.

Mr. MCDADE. What production rate is required to keep both Lima and Detroit open?

General VUONO. Five-hundred and seventy-six.

Mr. MCDADE. If you get the 576, what is the cost differential between producing the 576 at one plant and producing them at two?

General VUONO. That is all rolled together. I have the roll-out figures.

Mr. MCDADE. Can you give us that for the record.

[The information follows:]

It is more costly to operate two tank plants than to operate one tank plant. At the total program level, the cost difference between producing 576 tanks at two plants and producing 576 tanks at one plant is $21.3 million in fiscal year 1990 and $27.2 million in fiscal year 1991. The cost to produce 576 tanks at one plant is $1,868.4 million in fiscal year 1990 and $1,944.3 million in fiscal year 1991. To produce at two plants, the cost is $1,889.7 million in fiscal year 1990 and $1,971.5 million in fiscal year 1991.

Mr. McDade. If you do buy 576, if that were the production of tanks produced this year, what would be the additional cost for ammunition and support equipment over the next five years?

General Vuono. We will provide that.

[The information follows:]

Production of Abrams tanks at 576 per year instead of 516 per year buys the Army an additional battalion's worth of 120mm cannon-equipped tanks each year. We should assume these additional tanks would be fielded to active units that already have M1s with 105mm cannons. The non-recurring (one-time) cost for additional support equipment would be approximately $300 thousand per battalion. The annual recurring cost difference for the more expensive 120mm tank ammunition would be $3.4 million per additional battalion.

The M1s from the active units that received the M1A1's would be fielded at a rate of one additional battalion per year to Reserve Component units that have M60-series tanks. The non-recurring cost for additional support equipment and parts stockage would be approximately $3.4 million per battalion. There would be no increase in the cost of ammunition because the M60-series and M1 tanks both shoot the same 105mm ammunition.

Over the course of five years the total costs of the additional tank procurement would be $18.5 million for additional support equipment and $51.0 million for the more expensive ammunition.

Mr. McDade. What future role, if any, do you foresee for the Detroit tank plant, and in what time frame?

General Pihl. Sir, with the heavy force modernization plan, the first of the two vehicles we are looking at are the Block III tank and the Line-of-Sight Antitank System as a replacement for the Improved TOW Vehicle.

The earliest of those systems would be starting production in 1995.

Mr. McDade. You contemplate that for Detroit as a possibility?

General Pihl. It is one of the possible options in order to build the heavy force equipment in package 1 or the first six vehicles. We would layaway the tank plant and put it in mothballs until that time.

Mr. McDade. The budget phases in production of the Block II tank. What do these Block II modifications include and how much will they add to the cost of the tank?

General Pihl. The Block II mods start with the commanders' independent thermal viewer and the commanders' weapon station. They will include a 1553 data bus, a new armor protection package and an increased capability to do laser range finding. They will essentially take the price per tank from $2.7 million to $3.2 million.

We have a cost cap from the Defense Department of $300,000 per copy for the Block II modifications and we have to bring it in under that design-to-cost goal.

HEAVY FORCE MODERNIZATION

Mr. McDade. General Vuono, would you flesh out the concept of heavy force modernization? What is your thinking there, please?

General Vuono. As you know, we have been spending a great deal of time looking at the Soviet capability and the threat, and our objective is to obtain and sustain overmatch, so we always have a greater kill capability than he does, not just for tanks but for the whole heavy force mod program.

So a couple years ago we studied that whole area. We called it the Armor Family of Vehicles. We found that that program was not affordable, and so we have decided to modernize the heavy force based on near-term capabilities and what technology can provide for us in the long term. So we have said that in package 1, the critical items are the tank, the future infantry fighting vehicle, the line-of-sight antitank system, combat mobility vehicle, the armored resupply, and the advanced field artillery systems.

And based on what our technological capabilities are, those systems would be in the first package of the Heavy Force Mod Plan—HFMP. We have been developing the concepts of how to employ those systems, and the technology base and development programs have been focused and aligned to procure these systems in the first package of HFMP on a time line that would continue to give us overmatch over the Soviets' capabilities.

So it is not something that has just started. The study of that heavy force has been ongoing for a number of years, starting with the DSB Summer Study on Armor/Anti-Armor competition back in 1985.

Mr. McDade. We added money for M-1 upgrades in an add-on last year. As you look at this heavy force modernization, do you foresee an upgrade of the M-1 or are you looking at a new generation of the tank?

General Vuono. We are looking at a new generation. We will upgrade the Abrams tank to a Block II, configuration and then we will go into a competitive program where we will try and determine what it is that will give us the best tank for the future.

We call that the Block III, tank and while it may not necessarily be an Abrams Block III, it will be an evolutionary outgrowth of the tank as we know it.

Mr. McDade. But it might be—is what I am trying to ask you.

General Vuono. Yes, it might be a new tank depending on industrys response to Armys requirements.

Mr. McDade. The M-1 now is generally regarded as the best tank in the world and the Secretary talked about our victories in the Canada Cup, et cetera. Why do you have to look at a new tank if the upgrades can get you the kind of firepower that you now have and sustain its relative performance?

General Vuono. Our studies show that we need to look, we need to broaden our technological base beyond just the Abrams, to provide the kind of overmatch capability that we see us facing with the future Soviet tank.

Mr. McDade. What kind of things are you thinking about?

General Pihl. We are looking at an advanced cannon with an automatic loader, a larger caliber gun than the 120 mm, advanced fire control, a new engine, and an advanced suspension system.

We are trying to get away from the 1500 horsepower turbine engine that we have in the tank now and go to a propulsion system that is turned sideways, which would give you more volume in the tank in which to put in ammunition and also, special armor. Also, we are looking at modular armor to put on the tank to make sure we protect ourselves against the latest Soviet tank rounds and missiles.

The reason we say Block III is because it will look more like a conventional tank than some revolutionary design that doesn't look like a tank.

The Army is demonstrating competing technologies on a surrogate Abrams chassis and that is being done at the arsenal. We have three industry teams who are preparing concepts and paper designs, trade-off analyses and their best technological approach on how to put these weapon systems into a chassis that can be used by all of the other heavy vehicles in the heavy force mod plan.

Mr. Miller. If the gentleman would yield, General, you mentioned removing the turbine engines and placing an engine on its side. Are you talking about going back to the recip engines?

General Pihl. There are two different versions. One is a turbine engine and the other is a diesel engine, reciprocating engine. We have tried to cut down our fuel consumption and to substantially decrease the propulsion system volume.

Mr. McDade. Name the other vehicles besides the tank that are funded under the initiative and justify the urgency of requiring new start development for fiscal year 1990.

General Pihl. The other vehicles are the Future Infantry Fighting Vehicle; the Advance Field Artillery System or a replacement self-propelled cannon; the Combat Mobility Vehicle, which is an engineer vehicle; the Future Armored Resupply Vehicle, which goes with the future howitzer; and the Line-of-Sight Antitank.

We have told the Defense Acquisition Board that this is a system of systems; so once you have prescribed a common chassis, a heavy chassis and medium chassis, then each of the systems will go through their own separate milestone reviews, and we will have a colonel in the Army who is a project manager for each of the six systems.

Mr. McDade. But every one of them is a new development for 1990?

General Pihl. Sir the 6.3A Advanced Technology Transition Demonstrations start in 1990 and we are in concept evaluation of the heavy force mod plan now. The first of the actual vehicles to be fielded, the Line-of-Sight Antitank, is a 1993 procurement request. The Block III tank would be 1995.

Mr. McDade. What is the total amount of dollars in fiscal year 1990 under the new start developments as far as the R&D is concerned?

You can put that in the record in detail.

General Pihl. Sir, the 6.3A Advanced Technology Transition concept exploration definition contracts for the Block III, $25 million; for the component advanced technology test bed, $98 million; for the Common Chassis Advanced Technology Transition Demonstrator, $162 million; for the combat mobility vehicle demonstration $7 million; for the Field Artillery system $1 million; for the Line-of-Sight Antitank, $50 million; for a total of $248 million.

I want to be sure that the committee understands this is a research-and-development proposition.

Mr. McDade. Didn't you have to restructure your technology-based projects to integrate all this?

General Pihl. Yes, we did. We moved $1.2 billion within the RDT&E accounts out of my $5 billion in RDT&E as well as some procurement lines. I would say restructured but also refocused. We focused the tech base around our number-one priority, which is armor and anti armor.

Mr. McDade. Is there a complete consensus in the Army over the direction of the initiative and the vehicles covered? Do you have a good agreement about this?

General Vuono. Yes. From me on down within the uniform. We have had extensive meetings, discussions and agreements among the commanders and those in uniform who are working that program.

Mr. McDade. Tell us why you want to pursue a common chassis for the program. What data show that this concept is going to be cost effective?

General Pihl. We believe in demonstrating a common chassis. The commonality when you put the vehicles in the field in terms of the number of repair parts you have to buy will be reduced.

So we are looking at operation and support costs in terms of reducing it.

Mr. McDade. Do you have any independent analytical data that will show that it is cost effective to do it that way?

General Pihl. Sir, we have proposals from each of the three contractor teams who are competing for the right to do heavy forces mod, and I can provide that also.

Mr. McDade. Those are the contractors selling their products.

General Pihl. At some time we will have to have an independent review of our data. We have assigned the Program Executive Officer within the last two months, and he is now getting organizations in Detroit to take the program from the Armored Family of Vehicles Task Force, when it was under the Office of the Deputy Chief of Staff of Operations and Plans.

Mr. McDade. When do you plan to have independent analytical data?

General Pihl. We are going to have to have internal analytical data before we go to the Defense Acquisition Board in the fall of next year. So it will be within the next year and a half. I hope "independent" means that we can send that to our own noncontractor analytical capability.

Mr. McDade. It is something that you and we can rely on as a potential for purchasing.

Thank you, General.

General Pihl. Yes, sir.

Reserve Component Automation System

Mr. Murtha. Let me go back to the reserve component automation system. Now, as I understand, this has been going on for ten years, is that right, Mr. Secretary?

Secretary Marsh. I think that is correct.

Mr. Murtha. Congressman Sonny Montgomery is vitally interested in this thing. He sent me a letter saying how important this is.

Do you think this is important, Mr. Secretary? This is an important need for the Army?

Secretary Marsh. Are we talking about the computer system?

Mr. Murtha. We are talking about the reserve component automation system.

Secretary **Marsh**. As I understand the concept, Mr. Murtha, the idea is to give the reserves a computer capability that will enable it to merge with much of the current computer capability that you have in what we call the sustaining base of the active force.

These are medical records, personnel records, morning reports, those sorts of things. As I understand, this is to be the reserve mode, you might say, for the total Army computer system.

If I am wrong about that—is that correct?

General **Freitag**. That is correct.

Mr. **Murtha**. You have a manual system today, is that accurate?

Secretary **Marsh**. That is right. They do not have a modern system that does the totality; it is not just mobilization, it is personnel records, medical records.

You want to speak to that?

General **Freitag**. It is my understanding that you have covered the waterfront fairly completely. The whole automation program covers so much more than just a telephone call to alert someone to move. It includes unit moves, the personnel; and health records, financial controls, and the important thing is those automation programs dovetail with the active component.

Mr. **Murtha**. I now understand it is important. This is something you need. We put $200 million in and the committee understood it was important before I did, so we put $200 million in and nothing happened. For ten years we have been arguing that this is important, but we can't get it done. What is the problem?

General **Freitag**. That is a portion I cannot speak to. My background is not in that area.

Mr. **Murtha**. Can somebody speak to that?

Secretary **Marsh**. In my conversations with Bill Chappell, I think one of the problems has been one approach as to what computer system approach that you use. I think Mr. Chappell's view was, with some merit, that you needed a system that was tailored better to the reserve components structured by those who dealt with the reserve components and brought into the system by people from the reserve components, which was the reason for assigning the project officer, General Temple, in order that the development of the system would be on the reserve side and would be responsive to reserve needs.

I think you had a difference of view between the active component and reserve component as to what they needed, and they ended up at loggerheads.

Mr. **Murtha**. Now you have $200 million and General Temple is in charge. Is he the problem?

Secretary **Marsh**. No, he is not the problem. In fact, he has been a major part of the solution, in my view.

I believe that the program has gotten on track within the last year, year and a half because of Mr. Chappell's interest in it and I think it is moving along.

Mr. **Murtha**. So when the Chief comes back next year and you are in a different position, we will be able to ask him and this thing will be on track, right, Chief?

General **Vuono**. I will say, Mr. Chairman, that I will be back next year, and we will address that.

Mr. MURTHA. Well, I hope that we will be able to get a mobilization system for the reserves. I hear rumors it is cut out, the out year funding has been taken out, and everybody agrees we need a system.

It seems to me we ought to be able to get a system in place. You have the people to do it, you have the money, I would hope by next year you could give this committee a report that it is going to be done.

General VUONO. With as much interest with this committee, I don't believe that we have cut anything out of there arbitrarily. There were adjustments. It may have been as a result of inability to execute, but to my knowledge we didn't cut anything out arbitrarily.

Mr. MURTHA. So it is unfair to characterize the situation that this has been going on for ten years?

General PIHL. I would say the modern RCAS started in 1987. There is a history before that, obviously.

Mr. MURTHA. So this has been going on since 1987.

General PIHL. The direction from this committee to revise the program occurred in 1987, yes.

Mr. MURTHA. We are trying to reduce the number of our general provisions in our bill and we hope we will get the cooperation of the service so we can do that; but if this is an indication of the kind of cooperation we are going to get, we are going to go right back to adding general provisions because it doesn't sound like we are making much progress in this particular system.

General VUONO. I think, Mr. Chairman, since 1987 we have made great progress and we will get back to you on where we stand on the program.

Mr. MURTHA. Mr. AuCoin.

ISRAELI TANKS

Mr. AUCOIN. Thank you, Mr. Chairman. I want to go back to the question I asked about the range of the Israeli converted Centurion tanks. What I was saying is that my staff was briefed on the Golan Heights and was told by a commander there that the effective range of those tanks--the gun and the ammunition they used with the gun—was 5,000 meters.

What I am describing here is a report that was an effective range, not only that the round could reach the tank but could penetrate the tank and the inference was that it was lethal against the T-72.

General Vuono, you indicated that this kind of accuracy and performance is in large part a function of training and individual capability. And that we are basically on par with the Israelis here.

Taking into account that what I meant in my description of that report was an effective lethality at that range, is that still your testimony today?

General PIHL. Yes, sir, it is.

Mr. AUCOIN. That the M-1 tank is effective at 5,000 meters against that kind of a target?

General PIHL. The question I guess deals with the Israeli 3108 round and the 105 caliber. We are building the M-900 round for our tank, so penetration at range of five kilometers is the issue.

Mr. AUCOIN. The reason I returned to this was that every time I have been briefed on the M-1 and effective lethal range, I never have heard 5,000 meters before. I always am briefed on somewhere in the order of 3,000 meters.

Why doesn't your briefing reflect that?

General PIHL. Because most of the briefing has to do with the average line of sight between engagements in Europe and not the Golan Heights.

The question, of course, is the effective range in terms of the probability of an engagement, and in most cases we talk to you about what our models say and what our two-sided tests have told us in terms of where the fight will occur.

When tank wars close down from 2,000 to 1,000 meters, then all tanks that can be seen and then are hit are going to be destroyed, and that is one of the problems. You want to open up at as far out as you can.

The TOW missile weapon system including our TOW missiles on the Bradley, have a 3,700-meter range. So that is the stand-off we have now for the Bradley.

The question will be addressed further in our Block II applications. The one thing between the sights, the gun and the capabilities of the human that we don't have working for us right now is the laser-range finder. It is not ranging out to 5,000 meters. The question then is, can the human judge that same range by eye, and the answer is, yes, you can.

Mr. AUCOIN. Then what is the Soviet capability,

General PIHL. In terms of their tank at effective range?

Mr. AUCOIN. Same question, their side.

General PIHL. Three-thousand on in.

Mr. AUCOIN. So we have quite an overmatch over the Soviet tank?

General PIHL. Right now we do on the TOW missile system on the Bradley as compared to a Soviet tank.

Yes, we believe we can stand off from them. You say effective range and penetration——

Mr. AUCOIN. The issue is the gun.

General PIHL. What design changes they have made to the gun. The M829-E2, which is our 120mm gun, modern kinetic energy penetrator, keeps us ahead of the Soviet Union, and that goes for the Block II product improvements we are going to put on the tank.

We are ahead in the armament enhancement initiative and in the free world.

Mr. AUCOIN. That is a significant fact given the fact that as you said, tanks are the best antitank weapon we have got.

General PIHL. Yes, sir. The question, of course, is the numbers.

Mr. AUCOIN. Is there a problem with the hyper-velocity missile in that heavy anti-armor program?

General PIHL. Sir, it is our highest-risk development system from a technical risk. LTV, the contractor, has what I would call a flight test program that matches most missile system test programs ———.

Mr. AuCoin. ———?

General Pihl. That is correct. But, on the other hand, if you look at what you are discussing, a flying baseball bat traveling at ——— meters per second that will take the turret off of another tank, it is the overmatch capability that we want to replace the Improved TOW Vehicle. ———.

Foward Area Air Defense System (FAADs)

Mr. AuCoin. Let me ask about FAADs, given all the controversy of the DIVAD. What is the IOC now for FAADs?

General Pihl. For all FAADS, sir, all five parts?

Mr. AuCoin. Yes. Are some coming on line sooner than others?

General Pihl. Yes, sir. Combined arms pieces, the air defense sight for the Bradley and the air defense round for the tank are already developed. The Line-of-Sight Forward Heavy, the replacement for the DIVAD——

General Vuono. Line-of-Sight Forward-Heavy, FUE, first unit equipped, 1992. The Non-Line-of-Sight first unit equipped 1992. Line-of-Sight Rear, first unit equipped, that is Pedestal Mounted Stinger, April of 1989, and the combined arms solution, as General Pihl said, we already have.

Mr. AuCoin. Is there any slippage in any of those, in the line-of-sight forward-heavy or the non-line-of-sight fiber optic guided missile?

General Pihl. Sir, we have had a slip in the Line-of-Sight Forward-Heavy in the maximum amount of testing that we have to do this year. This is a key year for us because we are in the $400 million request in 1990 and in the requirements that have been imposed upon us to have three certifications, one from the Secretary of Defense, one from the Director of Operational Test and Evaluation, and one from Mr. Krings, and one from the Comptroller General. By the time we complete all the testings, that is going to add about eight months to the program.

Mr. AuCoin. So you have an eight-month slip?

General Pihl. Yes, sir, from your original estimate.

Mr. AuCoin. Why is there a multi-weapon solution now to this problem whereas at the time of DIVAD, we had a single-weapon solution? What is behind that thinking?

General Vuono. After we had difficulties with the DIVAD, we did a complete re-analysis of the battlefield and found that one of the difficulties was that no one weapon system could accomplish what was necessary with forward area air defense so our concept was a system of systems which is what we just described to you.

Fiber Optic Guided Missile (FOG–M)

Mr. AuCoin. Let me ask you about the FOG–M, non-line-of-sight fiber optic guided missile. How different is that from the AAWS–M/FOG candidate?

General Pihl. Sir, the difference is they both apply fiber optics wire, but the FOG–M system that we are building now as an air defense system will have a ten kilometer range, so it has a much larger diameter, a bigger spool, can store more wire. it is designed in the air defense regime.

We hope to have the objective system out to —— to find the HAVOC and the HOKUM helicopters behind the hill and destroy them. So the only thing common in the AAWS-M fiber optics missile and the FOG–M air defense system is fiber optic wire.

Mr. AuCoin. With all the clutter in the air, how practical is it to have a wire-guided projectile for anti-aircraft?

General Pihl. I think given what I know about TOWs and the experience of those wires on the battlefield, the probability that you are going to have the clutter interfere with the fiber optic wire is reasonably remote in terms of a point-to-point engagement.

Mr. AuCoin. Okay. Thank you.

Mr. Murtha. Mr. Miller.

Mr. Miller. No additional questions.

Mr. Murtha. Mr. McDade.

LHX Helicopter

Mr. McDade. I want to chat with you about the LHX and the GAO report that was published and if you will, answer the questions on LHX for the record.

As you know, the Packard Commission recommended use of prototypes. In the LHX program, however, the Army will not build a prototype until after the paper competition has been concluded.

What is your feeling about that? Don't you think there is a need for a prototype prior to the time that you down select and make that decision on the winner of the competition?

Secretary Marsh. The question of whether or not you would prototype was one that was very carefully considered and debated at length between Army and OSD, and at one point a decision was made at the OSD level to go with the prototype.

But because of the costs and affordability, and because you could make a very strong argument that it was not necessary, it was decided that the information that we had that was on hand, the nature of the program, that we could go with a paper down select, which actually was the original Army position going in.

Mr. McDade. A prototype always does cost you more money, but you get a payback in terms of assurance of performance, don't you?

Secretary Marsh. Considering the nature of the competitive process we had here, each of those two teams are made up of very capable manufacturers, I think the factors are there that will produce the same results as the prototype.

General Vuono. I would like to add to that, it seems to me that as we looked at it, that based on the work already done, that I am confident that we can go to DEMVAL and be assured that we are going to get the kind of product we want without going to the cost of a prototype.

Mr. McDade. Those folks described it as a difficult problem. The Army original position, as I recall, was to go to prototype, and you said, Mr. Secretary, the decision to do otherwise was made at the Secretary level.

I am still concerned about the risk factors out there, that you are liable to get into a situation where we don't have a prototype, we are not able to test it thoroughly, it will lead to a lot of expenditure with a lot of risk.

Can you allay these fears?

Secretary MARSH. Maybe General Pihl ought to tell you the current status. I think significant progress has been made.

General PIHL. We downsized the shell from what was studied in the original LHX program to a 7,500 pound empty weight. We have already in terms of demonstration—I want to get away from the just paper aspects of the question—we have demonstrated an advanced composite airframe. We have demonstrated advanced digital optical controls, advanced technology demonstrator engine, the T-800, so that is an actual engine we have just selected. We have gone through a demonstration and validation risk reduction.

The two contractor teams, McDonnell Douglas and Bell, have a little different approach to this than do Boeing and Sikorsky.

McDonnell Douglas and Bell have demonstrated the no-tail rotor concept, and Boeing and Sikorsky have an S-76 helicopter with our extended nose that has demonstrated pilot work reduction.

So the real ballgame for LHX is in the mission equipment package and how you integrate the avionics of the aircraft, and at the present time in DEMVAL we are concentrating in wind tunnel simulation and actual flying surrogates with the mission equipment package on the areas where we have the most unknown about the LHX program.

When we finish the DEMVAL phase, we will go into full-scale engineering development for the winning team. I think it is prudent risk to go forward with the DEMVAL program as opposed to flying prototypes.

Mr. MCDADE. What would be the additional cost if there was a decision at this juncture to go to prototype?

General PIHL. You would be adding at least $1.0 to $1.2 billion to the program.

Mr. MCDADE. All of you concur that that is not a justifiable expenditure, that the risk with testing components individually and avoiding a prototype will be ameliorated by those tests?

General VUONO. We believe so.

Mr. MCDADE. Suppose the committee decided that we were not willing to accept the risk and we were going to put the funds to get a prototype. What would be your reaction?

General VUONO. We would have to see what it would do to us in terms of time. Secondly, it would depend on where the $1 billion came from.

Mr. MCDADE. Let's assume it is an add-on. Wouldn't you rather have a prototype than do paper demonstrations?

General VUONO. It is more than paper demonstration. I think given the added cost that I would—if I had $300 million, I could use that in other programs—that I am satisfied we could get the right airframe the way we are proceeding.

Mr. MCDADE. Well, we hope you are right. GAO currently reports the Army is estimating unit costs at $8.2 million versus $7.5 million. Do you plan to be able to meet the cost goals?

General PIHL. Yes, sir, we do.

Mr. MCDADE. You are not going to exceed them?

General Pihl. We are not, because that is the key criteria in the down select between the two large teams.

Mr. McDade. The GAO said recent procurement funding projections did not provide enough procurement money to produce the LHX at planned rates.

Are there shortfalls that exist in the current five-year plan in procurement? Is GAO right about that?

General Pihl. In the 1994–1995 time frame there is a piece that would have to be fixed in the subsequent budgets.

Mr. McDade. Put a number on it for the record.

[The information follows:]

There are no procurement shortfalls for LHX in our current five year plan. The GAO was referencing a preliminary planning budget beyond the five year plan, not approved budget. It is our intent to fully fund the LHX program throughout its life cycle.

Mr. McDade. The fiscal year 1989 Appropriations Act requires that "the designs of the Army LHX helicopter, the Navy Advanced Tactical Aircraft, and the Air Force Advanced Tactical Fighter must incorporate Joint Integrated Avionics Working Group standard avionics specification no later than 1998."

What is the Army doing in LHX to meet congressional "joint avionics" requirements?

General Pihl. We are fully integrated into the defense management of ICNIA and INEWS. Dr. Sculley, my immediate supervisor, is the Army representative with the other assistant secretaries and General Andreson, who is the program manager for the LHX, is the executive agent to get the new avionics systems that are common to the plans you just mentioned, into the LHX.

Mr. McDade. Thank you, General.

Thank you, Mr. Chairman.

[Clerk's note.—Questions submitted by Mr. McDade and the answers thereto follow:]

LHX PROBLEMS

Question. In December, GAO published an audit on the LHX program entitled "Risks Facing the Program Raise Doubts About the Army's Acquisition Strategy."

GAO says that the Army currently estimates the empty weight of LHX to be 8,000 pounds compared to the 7,500 pound goal. This excludes the weight of planned improvements and tactical "kits." Is there a weight problem? Explain the concept of tactical kits. What items are in such kits? Are armor kits included; would Army units really "bolt-on" armor kits just prior to combat? Wouldn't the additional weight of various kits adversely affect the helicopter's performance which would be predicated on the empty weight goal?

Answer. The 8,000 lb. weight in the GAO LHX report referred to an estimated weight empty of a Government LHX design that met or exceeded all requirements of the draft LHX Required Operational Capability (ROC). The Government design estimate is based upon concept studies, weight trends of existing helicopters and other parametric data. During the LHX Demonstration/Validation (DEM/VAL) phase, the contractor teams will be performing numerous requirements trade-off studies and much more sophisticated preliminary design activities to better define the weight and capabilities of an optimized LHX design with a weight empty of 7,500 lbs. or below. Concurrent with these design efforts and trade-off studies, detailed combat effectiveness studies will be performed to ensure that resultant 7,500 lb. weight empty designs do not compromise LHX effectiveness. Based upon recently completed initial reviews of both LHX contractors DEM/VAL plans, the Army is confident that either team will be able to propose a combat effective LHX design within the 7,500 lb. weight empty goal.

Future product improvements nor standard combat kits were ever included in the LHX weight empty goal.

Tactical kits are items of equipment that would be installed in the aircraft prior to entering combat based upon environmental conditions, threat intelligence or other scenario/mission conditions. Examples of such kits are de-ice systems for cold weather operations; chemical filters and detectors if intelligence indicated the presence of chemicals on the battlefield; Aircraft Survivability Equipment (ASE) tailored to a specific threat; auxiliary fuel tanks for extended range missions and specialized fairings for missions which require additional signature reduction. The use of such kits is common Army practice and is consistent with approved military standards for weight calculations.

The current Government design for LHX includes kits for part of the crew armor protection. This concept is by no means finalized, but if utilized the design would minimize the time necessary to install such armor. The DoD Joint Technology Coordinating Group for Aircraft Survivability (JTCG/AS) currently has a project underway to examine the feasibility of implementing a "modular" armor concept for helicopter applications.

The LHX performance is not based upon weight empty, but rather on primary mission take-off gross weight using 95% of Intermediate Rated engine power (IRP). For missions requiring extensive combat kits, the T800 unique 10 minute Maximum Rated Power (MRP) rating (approximately 10% more power than IRP) can be utilized to retain take-off flight performance at these higher gross weights.

Question. The Packard Commission recommended use of prototypes. In the LHX program, however, the Army will not build a prototype until after the paper competition has been concluded. What are your views on the need for prototypes prior to the "downselect decision?

GAO offers some alternatives, such as competitive prototyping of the key mission equipment like avionics or delaying the full scale development decision until prototype mission equipment is demonstrated. What is your reaction?

Answer. Obviously, there are benefits to be obtained from a competitive prototype fly off. However, after consideration of several alternatives, the Army and OSD selected the current program strategy as the most cost effective within budget limitations. The current Demonstration/Validation phase includes competitive demonstration of key prototype components of the Mission Equipment Package, engineering simulations, design trade studies and wind tunnel testing of proposed configurations. The emphasis during this phase of the program concentrates on the demonstration of critical LHX prototype components such as target acquisition, night pilotage, and high speed processing. The Army is confident that the information generated during the Demonstration/Validation Phase of the program will lead to a fully informed source selection decision. Prototype LHX aircraft systems will be fabricated and fully tested during the Full Scale Development program to ensure the Army that the LHX provides the requisite capabilities prior to production commitments.

LHX UNIT COST

Question. GAO reports that the Army is currently estimating the unit cost at $8.2 million each versus the $7.5 million goal. How do you plan to meet the cost goals?

Answer. The Army has established weight (7,500 pounds) and cost ($7.5 million, unit flyaway, FY 1988 $) constraints for the LHX program. These constraints were set after extensive analyses by both the Army and the competing contractor teams, and are considered to be achievable and reasonable. At the time these were set, the Army's estimates for a fully compliant draft Required Operational Capability (ROC) helicopter were 8,114 pounds empty weight and $8.2 million unit flyaway cost. It must be clearly understood that the primary purpose of the Demonstration/Validation (DEM/VAL) Phase is to refine and finalize the LHX ROC and System Specification to achieve an LHX that maximizes combat effectiveness within the weight and cost goals. The LHX draft ROC and System Specification represent the starting point for trade-offs to define such a design. Before any trade-offs are accepted, a thorough examination of all aspects of combat effectiveness, life cycle cost, and supportability will be examined both by the contractor teams and independently by the Army. The current Army estimated empty weight for a full draft ROC compliant LHX design is less than 7,800 pounds. Each of the LHX contractor teams has provided a cost and weight compliant LHX design as a baseline with their DEM/VAL proposals. Either of these designs represents an extremely combat effective LHX. In addition, the Army will perform an extensive Cost and Operational Effectiveness Analysis (COEA) utilizing an LHX design that meets both cost and weight goals to ensure that the LHX will be a combat effective aircraft system.

Question. GAO reports that "recent procurement funding projections do not provide enough procurement money to produce the LHX at planned rates." What funding shortfall exist in your current five year plan?

Answer. There are no procurement shortfalls for LHX in our current five year plan. The GAO was referencing a preliminary planning budget beyond the five year plan, not approved budget. It is our intent to fully fund the LHX program throughout its life cycle.

Question. The FY 1989 Appropriations Act requires that the "designs of the Army LHX helicopter, the Navy Advanced Tactical Aircraft, and the Air Force Advanced Tactical Fighter must incorporate Joint Integrated Avionics Working Group standard avionics specifications no later than 1998." What is the Army doing in LHX to meet Congressional "joint avionics" requirements?

Is the use of ICNIA/INEWS mandatory?

Answer. The Army is an active participant in the Joint Integrated Avionics Working Group (JIAWG), as are the two competing industry teams that are under contract for the LHX Demonstration/Validation Phase. The LHX Dem/Val Request For Proposal requires the contractors to use the current JIAWG Mission Equipment Package (MEP). The Army develops the JIAWG requirements jointly with the Air Force and Navy through the JIAWG organizational structure. The most recent effort is the revision of the tri-service Joint Integrated Avionics Plan which has been signed by the three Service Acquisition Executives as of 1 March 1989. This plan, which reflects the commitment of the Services to the JIAWG concept, will be sent to Congress by OSD. The LHX and the Air Force ATF programs will both use the same JIAWG specifications and standards as they enter FSD in December 1990 and January 1991 respectively. The goal is interchangeable avionics hardware. The Navy A-12 will apply these common avionics items in preplanned product improvement effort in 1998.

The LHX contractors are required to use ICNIA and INEWS technologies as the baseline for their communications, navigation, identification and their electronic warfare design efforts. The contractors are also required to provide operational and cost effectiveness analyses if it is concluded that the ICNIA and INEWS technologies would adversely affect cost, weight or performance risk for the LHX program.

[CLERK'S NOTE.—End of questions submitted by Mr. McDade.]

Mr. MURTHA. Thank you, Mr. Secretary, General Vuono.

Mr. Sabo has some questions for the record.

The committee will adjourn until Tuesday at 10:00 a.m.

[CLERK'S NOTE.—Questions submitted by Mr. Sabo and the answers thereto follow:]

ROTARY VALVE/ROTARY COMBUSTION TECHNOLOGY

Question. In the last two years, the Committee has included language in its report supporting continued research and development into an engine technology known as rotary valving system * * * According to our fiscal year 1988 report, the Committee supported research into the use of rotary valving "in spark-assisted Diesel/multi-fuel engines." Again, the fiscal year 1989 report supported using this technology "only for the purpose of developing rotary valving/rotary combustion chamber technology * * * to achieve optimum utilization of multiple fuels.

This language is very clear. I don't see how it can be misunderstood. Yet I am concerned that the Army is losing sight of these goals. I understand that the contractors—who have also received substantial funding from the private sector—are being forced to merge their research into a Diesel engine program, the Advanced Integrated Propulsion System. This makes it difficult, if not impossible, to achieve the research results the Committee has supported.

Could you explain why the Army has chosen to ignore the Committee's directive?

Answer. While no funds have been appropriated for this development, the Army has been supportive and has made a concerted effort to satisfy the Committee's intent. When the contractor, Hansen Engine Corporation, of Minnetonka, Minnesota, exceeded the schedule by eighteen months and the required additional funds to cover a $161,000 cost overrun in the first phase, the Army went more than half way to allow completion of that work. Also, despite the marginal success of Phase I, we agreed to conduct the second phase. In fact, Hansen Engine Corporation signed a 24-month contract on September 23, 1988 for $703,444 agreeing to demonstrate rotary valve technology in a Cummins L–10 multi-cylinder diesel engine. Performing the development in this manner, requiring the contractor to meet the attributes of a high output engine, is consistent with our overall propulsion development program. In previous statements, Dr. Sculley has stated the Army's intent to conduct the rotary valve development in a militarily relevant, multi-cylinder engine, which is not inconsistent with the Committee's direction. So, I would say that the Army has not ignored the Committee's directive, but has made a good effort to produce a meaningful demonstration that will contribute to the Army's vehicle propulsion requirements.

M1A1 Tank Production

Question. The budget submitted by former President Reagan called for reducing M1A1 tank production to 448 in fiscal year 1990 and 261 in fiscal year 1991, while closing the tank plant in Warren, MI.

Has the Army bought all the M1 tanks it needs? If it has, how does that affect the total force in which active and reserve forces are trained and equipped in a similar fashion? I know that many of the reserve and guard forces still deploy the M60 tank—some still use M48s. Do those forces need more modern equipment?

Answer. The Army has not bought all the tanks it needs. In fact, despite the lower procurement quantities in fiscal years 1990 and 1991, the Army is fully committed to continued procurement of more modern tanks as part of our armor/anti-armor strategy. In fiscal year 1991, we begin buying the M1A2 tank which will provide our Europe-based armor units the tank they need to remain the best on the battlefield. The Army's program in fiscal years 1992, 1993, and 1994 calls for increased rates of procurement to achieve that goal. It is true that some Reserve Component units still retain the M48 or M60 model tank. However, all RC units will be equipped with at least the M60A3 tank by the end of fiscal year 1991. Some others are already equipped with the Abrams tank. The first RC roundout unit was equipped with the M1 in fiscal year 1983. The first non-roundout unit was equipped with M1 this year. The process of equipping the Reserve Component armor force with Abrams will continue. Additional fieldings of Abrams to the RC in fiscal year 1990 was recently approved. The Army Staff is working with the National Guard and the Army Reserve on a long-range plan that will provide Abrams to all RC units over time.

Question. What will the M1A1 cost, per tank, in both fiscal years 1990 and 1991? How does that compare with the unit cost in previous years? How much additional funding would be necessary to bring unit cost down?

Answer. At the total program level, in fiscal year 1990, the procurement unit cost (less spares) of the M1A1 is $2.977 million. In fiscal year 1991, the unit cost (less spares) is $3.553 million. It should be noted that in fiscal year 1991, the Abrams will transition from the M1A1 configuration to the M1A2 configuration and to accommodate this change, long-lead and non-recurring monies are required in fiscal year 1990, the unit cost (less spares) in fiscal year 1989, the last year in which all tanks delivered to the government will be produced at the minimum economic rate of 60 per month from both tank plants, is $2.26 million. To produce tanks at the fiscal year 1989 rate and to incorporate the full suite of improvements required for the M1A2, the program would have to be resourced at the 720 tanks per year level. In fiscal year 1990, the additional requirements to accomplish this would be $310.5 million (unit cost $2.925 million); in fiscal year 1991 the additional requirement would be $610.1 million (unit cost $3.393 million).

Question. How much will we save by closing the Detroit plant, and how much will we spend to close it? If we need to re-open the plant because of additional purchases or foreign sales, what would that cost? If we are closing the plant, why is the Army moving 100 personnel there from other bases?

Answer. The production savings associated with producing equal quantities of tanks (i.e. the President's Budget through the FYDP) at one tank plant (Lima, Ohio) vice two plants (Lima and Detroit) are as follows:

Fiscal year	*Millions*
1990	$18.4
1991	24.4
1992	25.8
1993	25.5
1994	25.9
Total	120.0

The Army has budgeted for the following amounts for the lay-away to complish the following type tasks:

Fiscal year	*Millions*
1990	$31.5
1991	39.8
1992	5.5
1993	5.6
1994	5.7
Total	88.1

Based on the Army's 1987 analysis, it would cost an additional $40 million and 15 months to reopen the Detroit tank plant once closed.

The Army is not transferring manpower spaces to the Detroit Arsenal Tank Plant. The Base Closure Commission recommended transferrring 100 spaces from the Materials Technology Laboratory to the Tank-Automotive Command. The Detroit tank plant is on the grounds of the Detroit Arsenal, which includes the Tank Automotive Command Research and Development Center.

Question. The proposd Block III tank appears to be a new tank. When can we expect to begin production? How many years will there be between the last year of M1A1 production and the first year of Block III production?

Answer. Current plans call for Block III to enter low rate production in FY97 and commence full rate production in FY98. The Army is not planning to allow any break in production between M1A1 (last vehicle in January 1993), M1A2 (production between 1992 through 1998), and Block III. Instead, the Army will transition from one configuration to another without interrupting production of any vehicle.

BLANK TRAINING AMMUNITION

Question. I understand that the Army is on the verge of releasing a request for proposal for blank training ammunition, in 5.56mm and 7.62mm. This RFP apparently was delayed from sometime last summer. Can you provide me with information on the status of this program?

Answer. The solicitations for blank training ammunition manufactured from alternate materials in calibers 5.56 and 7.62mm were released on March 8, 1989. Proposals are due on April 28, 1989. The performance specification in the RFP permits alternate materials, i.e., plastic; therefore, manufacturers who wish to produce plastic ammunition for the Army can submit such proposals. After evaluation of the proposals, the successful bidders will be requested to submit sample material for evaluation. These samples will be due in November 1989. Testing of these samples will be completed in March 1990. Subsequent to this testing, Army will have the necessary data to permit a contract award for full-scale production.

The one year deferral of the RFP was noted in an Insert for the Record for the House Appropriations Committee hearing on the FY 1988 Army Ammunition Procurement on April 12, 1988.

On February 28, 1989, the Army released a report on plastic training ammunition to the Chairpersons of the Armed Services Committees and the Subcommittees on Defense of the Approrpriations Committees. This report details our current experience and future plans for small caliber training ammunition manufactured from alternate materials.

[CLERK'S NOTE.—End of questions submitted by Mr. Sabo. Questions submitted for the record and the answers thereto follow:]

BUSH BUDGET REDUCTIONS

Question. What policies and priorities did you follow in applying the reduction ($1.8 billion reduction to the 1990 budget)?

Answer. The Army budget adjustments were based on the following principles:

a. The Army, first and foremost, is people. Therefore, we protected essential soldier programs to ensure retention of a quality force.

b. The Army's forward deployed units and those Active and Reserve component units ready to reinforce them or respond to contingencies around the world are the centerpiece of conventional deterrence. It is premature tc reduce Army force structure prior to completion of the NSC's strategic assessment and consideration by the President of the significant leverage that force structure could provide in negotiations of Conventional Forces in Europe.

c. We tried to ensure that near-term readiness was not reduced by maintaining current operating tempo in FY90–91, protecting enhanced training programs for the Reserve Components, and capitalizing on the effective training provided by our Combat Training Centers.

d. We were forced to take additional risks in the area of sustainment by letting the depot maintenance backlog and BMAR grow.

e. Investments in construction, RDTE, and procurement were reduced, the cuts being measured against the warfighting priorities of the Army. The resulting terminations and slips reduce the warfighting capability of the future Army, but we were forced to sacrifice this investment in materiel capabilities to retain our investment in soldiers and the units which they man.

Question. What force structure changes has the Army proposed in its revised budget?

Answer. A decision has yet to be made.

Question. What program terminations or stretchouts have been proposed?

Answer. A decision has not been made.

Question. We understand that the Air Force is taking major reductions in a small number of large-dollar programs. Is it fair that the Air Force can meet its allocation this way while the Army cannot?

Answer. Each service has unique missions, functions, and mix of force structure and weapons systems, designed to contribute to a combined national defense. While budget adjustments hit all services, service "solutions" will be unique. Services strive to maintain the capability to support their portion of a combined national defense and counter associated risks. For some services, this may mean an adjustment to a major weapons program while for others, several adjustments to smaller programs may be appropriate. Both alternatives attempt to optimize the service's ability to perform its missions relative to the national security risk apparent at the time the adjustment decision is made.

TROOP ROTATIONS

Question. A recent news article reported that the Army is examining a plan to deploy battalion units more often to Western Europe. The plan calls for rotating a battalion to Europe more often. If implemented, this would reduce the number of U.S. troops permanently stationed in Europe. Rotating units from the U.S. to overseas is not new, the Marine Corps rotates battalions to Okinawa and the Army sends 1,000 soldiers every six months to the Sinai peninsula as a peacekeeping force. But rotations to Europe on a large scale is something new.

Mr. Secretary and General Vuono, what are your views on this plan?

Answer. The Army has conducted a variety of rotation schemes from platoon to division size, e.g., Gyroscope, ROTAPLAN, and Brigade 75/76. These were abandoned because of their high costs and cyclical adverse impact on readiness.

We have relooked the issue of rotating battalions on a six-month, unaccompanied temporary duty status as a possible way of reducing the cost of forward deployed forces. The process involved determining the possible rotation schemes, cost comparisons of temporary duty and permanent change of station, and cost savings associated with reducing dependents overseas.

Determining possible rotation schemes involved finding three or more compatible CONUS based units at the same installation for every OCONUS unit. A three to one ratio was considered the minimum necessary in order to provide essential stability in the CONUS sustaining base (Marine Corps uses a four to one ratio). Given a three to one requirement, there are only 17 rotation schemes possible within Europe. This would involve 71 CONUS battalions and 17 OCONUS battalions. If all 17 rotation schemes were activated, less than 10% of USAREUR force structure would be affected.

Next, we developed an updated cost model to compare rotation costs with permanent change of station costs. The annualized costs of temporary duty would be more expensive than the annualized cost of permanent change of station because of authorized temporary duty entitlements and transportation costs.

We have also looked at what costs savings would accure because of the reduced number of dependents overseas. The savings would be marginal because reducing dependents in a specific area does not necessarily close facilities or reduce staff. The one exception was Garlstedt, GE, garrison for the 2nd Armored Division (FWD). Because all of its units are located on one installation and the post does not service any other major units, all family support activities could be eliminated. This would result in an OCONUS savings of just over ten million dollars; however, over eight million of this would be transferred to support the increase in CONUS family support activities. OCONUS family support savings do not offset the increased costs of temporary duty entitlements and transportation.

Because of the overall increased cost and the anticipated adverse affect on morale and retention, the Army does not plan to initiate six-month, unaccompanied rotations to Europe.

Question. It is also assumed that as result of rotating these units every six months, a number of dependents will come home. Can you comment on this also?

Answer. If the Army were to adopt six-month, unaccompanied rotations, then many of the dependents of these soldiers would remain in CONUS. However, unless the State Department restricts access to the country, there is nothing to keep a soldier from paying the way for his or her dependents.

Additionally, reducing dependents overseas offers only marginal savings because most of the family support costs are simply transferred to CONUS.

Finally, total Army dependents in Europe account for less than 11% of all U.S. citizens abroad on any given day.

TROOP STRENGTHS

ACTIVE VERSUS RESERVE UNITS

Question. Former Navy Secretary Lehman in a new article states that the United States needs to change the balance between active and reserve forces. He stated that while the Army force structure of 28 divisions is about right, it should be the reverse of the current structure of 18 active and 10 reserve divisions. Secretary Marsh and General Vuono, what are your views on this subject?

Answer. Mr. Lehman's article does not take into account the Army's global contribution to the national military strategy. Army Active component forces serve as forward-deployed, rapid reinforcement and contingency units. Forward deployed and rapid reinforcement forces are a part of the U.S. commitment to treaty obligations throughout the world. Army contingency forces are the ground components that maintain the ability of the U.S. to respond with ground forces capable of sustained land combat across the spectrum of conflict.

Time, as a factor in strategy, cannot be ignored. Reserve component units require time to mobilize, train, and deploy, most therefore are missioned as reinforcing forces. Six active Army divisions are already rounded out by reserve component brigades. Mr. Lehman points out the Army already has 10 reserve component divisions. In addition, sixty percent of our support forces are in the reserve component. There is a limit to which reserve components can pickup active component functions even ignoring time as a factor in strategy. Reserve component forces are currently short 45,000 of their authorized personnel. The whole question of further growth in reserve components needs to be viewed as more than a recruiting and retention issue and couched in the strategic context that has created the Army's global mission.

The Army's global mission requires more than the Army's current active force structure. Unless the threat to our national security is substantialy changed, we cannot safely reduce our active force structure. General Secretary Gorbachev's public relations offensive for force reduction has not been matched by scaled down production of modern land systems such as tanks, armored personnel carriers or artillery. The Soviets have not reduced the number of category I divisions. The military capabilities and military sophistication of second and third world nations continue to grow. The global requirements generated by our CINCs tell the Army our current active force structure is insufficient. To change active force structure without eliminating the missions that generate it puts the nation at risk, and limits the range of conventional responses available to the National Command Authority.

Question. In response to a similar question, the CINC Transportation Command cautioned against putting too much in the Reserves too fast. He indicated that what we could end up with is two active duties. Do you agree with his assessment?

Answer. To paraphrase General Cassidy, any wholesale change in the balance between active and reserve forces would not be practical. Given our present worldwide mission, the threat, and CINC requirements, our current force mix of Active Component and Reserve Component meets mission requirements. The Army's forward deployed, rapid reinforcement and contingency forces are mainly Active Component but six of our divisions are rounded out by Reserve Component brigades. In addition, about 60 percent of our support forces are in the Reserve Components. The National Guard provides 10 divisions which could be reinforcing or sustaining forces in a given theater. Since General Cassidy was also responding to Mr. Lehman's view of force structure issues, my answer to the previous question remains germane.

Question. Last year Congress added funds to create an equipment maintenance center in Germany to be manned by Army Reserve and Guard full-time personnel with Guard and Reserve maintenance companies from the United States manning the centers during three-week duty deployments. What is the status of this program?

Answer. The Equipment Maintenance Center (EMC) will host its first reserve component Heavy Equipment Maintenance Company (HEMCO) beginning 15 April 1989. A total of six HEMCOs have been scheduled to rotate through the EMC during FY 1989, and 12 HEMCOs are scheduled to participate in the initiative during FY 1990. The FY 1989 units will conduct three week rotations as funded in the FY 1989 DOD Appropriations Bill.

The EMC has been organized as a subordinate unit of the 29th Area Support Group, 21st Theater Army Area Command and is located in Kaiserslautern. The unit is made up of 11 full-time National Guard personnel, nine full-time Army Reserve personnel and 10 active component soldiers from U.S. Army Europe (USAREUR) authorizations.

If the assessment phase of the initiative, which is to run through FY 1990, is successful, the number of rotating HEMCOs could be increased to 16 annually beginning in FY 1991. Additionally, an objective of the assessment phase is to determine what other missions could be performed for USAREUR by reserve component units.

Question. Do you believe there are additional overseas units which could be transferred to the Army Reserve and Guard? If so, what types?

Answer. There may be additional units which could be transferred to the Army Reserve and Guard. This will depend in a large degree to the success of our test program for the RC Heavy Equipment Maintenance Company rotations in Europe. Phase three of the project would expand the program to other missions and types of units if warranted and supportable.

I would add that there is a limit to the extent to which RC units can pickup additional AC functions. The Army actively engaged in a Total Army Strategy over a decade ago and has expanded the reserve components accordingly. The Guard is up 24%; the Reserve is up 47%. This is a success story, but we are beginning to see limits to growth. The RC soldier costs sixty-five cents on the dollar compared to the AC soldier when we fully cost equipment, training, and all other costs. Additionally, many states and localities are having great difficulty meeting manpower goals. Overall, we must recognize that the potential to grow more structure is very limited and is localized.

Question. What do you believe are the benefits of transferring more overseas missions to the Army Guard and Reserve?

Answer. There are two major benefits to transferring more overseas missions to the Army Guard and Reserve. First, it provides excellent training and habitual association with U.S. forward deployed and alliance forces in an operational theater, and second, it provides a unique opportunity to exercise mobilization and deployment procedures. Our reserve forces that deploy overseas for training do so to train in an operational environment and to meet commitments our forward deployed forces cannot meet. However, when compared to AC units, the productivity, readiness and training time of RC units will be interrupted in any scheme which requires frequent rotations.

Question. Do you believe there will be a corresponding decrease in the number of active forces stationed overseas?

Answer. Not at this time. Our forward deployed forces are stationed overseas in support of national commitments to treaties and alliances. They are designed, manned, and trained to provide a credible deterrent to a recognized threat. I do not anticipate reductions except those that may result from the Conventional Forces in Europe (CFE) negotiations.

ACTIVE FORCE STRUCTURE

Question. In the 1989 Annual Report to the Senate and House Committees on the Budget—Part II, Reducing the Deficit: Spending and Revenue Options, the Congressional Budget Office presented the following options to limit spending for national defense: Please briefly state the feasibility of each option. Option 1: Eliminate three Army light divisions. Approximately 54,300 soldiers would be eliminated and the equipment programs peculiar to these divisions would be terminated.

Answer. First of all, the savings generated by this option would be not be substantial. Spaces saved would total 37,000, and this only if three of our fully structured active component light divisions were inactivated along with base support personnel. Dollar savings would be less than $1 billion per year. These savings are relatively minor when compared to the cost of some major weapons systems. Second, elimination of three light divisions would greatly constrain the flexibility of the National Command Authority in responding to crisis. Our active component light divisions are capable of rapid deployment anywhere on the globe on short notice. This is a significant deterrent capability. Additionally, light divisions provide the U.S. with an essential capability to fight in difficult terrain. This makes them an ideal response force for most third world areas. It also provides a capability to fight on urban, mountain, or forested terrain in Europe should that be needed. Elimination of these capabilities from our Army would severely constrain our ability to execute the national strategy and present greatly increased risk to the nation. Third, elimination of these or any divisions from the Army at this time will seriously degrade any leverage we now have in conventional arms reduction talks. Lastly, and more specifically, as one examines each of these divisions individually, the risk inherent in inactivity then becomes obvious. The 25th Division, forward deployed in Hawaii, is one of only two Army divisions in the Pacific, the other division being the 2nd in Korea. The 25th can reinforce our forces in Korea should the need arise, but more importantly it is available to CINCPAC for immediate response to crisis outside Korea and supports nation-to-nation programs throughout the Pacific AOR. To inactivate this entire division would pose unacceptable risk to our national security. To inactivate even part of this division would not only increase risk, but lessen our influence in a region that is rapidly growing in imporance to our nation's economy and security. For some nations, it would signal that we do not think the Pacific region is important. For other nations, it could signal that we are a declining power. The 6th Division is a roundout division with less than two-thirds its active component structure. This division is essential for the defense of Alaska, and our critical early warning installations there. Inactivation of this division would leave no active forces on the U.S.-Soviet frontier. Reduction to a single active brigade would cut little more than a battalion of soldiers from the force. The 7th Division is part of our worldwide contingency force. It has recently demonstrated its utility when the President sent it to Honduras to stabilize the situation on the Nicaraguan border.

Inactivating this division directly impacts on our capability to respond to contingencies in the third world. Our fourth light division is the 10th Mountain Division in New York. This division is an early deploying force formally committed to the NATO alliance by the Defense Planning Review Questionnaire. We have recently spent large sums in refurbishing Fort Drum, much of which is committed in long term contracts for facilities and services. Additionally, since this is a roundout division, active component space savings would be smaller than you suggest. The 29th Division is a Reserve Component division, the major element in the VA-MD National Guard. Inactivating it would net very little since the spaces would revert to their separate brigade configuration as was the case prior to our organizing the division headquarters in 1986.

Question. Option 2. Reduce enlisted end strength. Option calls for a total DOD reduction of 35,000 enlisted personnel by 1994. It is assumed that your share would be 10,000.

Answer. We oppose reductions to enlisted end strength. The Army's mission as a global strategic force requires more than the Army's current force structure. Unless the threat to our national security is substantially changed, we cannot safely reduce our end strength. Only if General Secretary Gorbachev's rhetoric on force reductions is matched by deep asymmetrical cuts in Soviet/Warsaw Pact forces can we afford an end strength cut. It is extremely important that we keep current end strength as leverage as we enter conventional force reduction talks. Presently, the military strength and sophistication of second and third world nations is growing rapidly. The global requirements generated by our CINCs tell the Army that our current force structure is insufficient. To unilaterally reduce strength puts the nation at increased risk, and limits the range of conventional responses available to the National Command Authority.

Question. Option 3. Reduce the number of active duty personnel because of the INF Treaty. Army's share is estimated at 6,400.

Answer. Army does not consider this a viable option. Our NATO allies expect us to enhance our conventional capabilities as we eliminate INF systems. Troops formerly used for INF are being converted to combat support and combat service support assets needed by USCINCEUR to provide deep battle capability and essential sustainment. The total cost savings generated by this option would be only $576 million over five years. If we keep the structure, we gain a relatively great enhancement in military capability for relatively little cost. We also show our allies that we remain committed to NATO. This is especially important to us as we assert our leadership role in forging a consensus on CFE. If we delete the structure, we lose an opportunity to enhance our forces and suffer a loss in credibility with our allies.

Question. Are you considering end strength cuts in your amended FY 1990 budget?

Answer. The Army's global mission requires more than the Army's current end strength. Unless the threat to our national security is substantially changed, we cannot safely reduce our end strength. General Secretary Gorbachev's public relations offensive for force reduction has not been matched by scaled down production of modern land systems such as tanks, armored personnel carriers or artillery. The Soviets have not reduced the numbers of category 1 divisions in their force. The military capabilities and military sophistication of second and third world nations continue to grow. The global requirements generated by our CINCs tell the Army our current end strength is insufficient. To reduce end strength without eliminating the missions that generate it puts the nation at risk, and limits the range of conventional responses available to the National Command Authority.

AMMUNITION PROCUREMENT

Question. From fiscal year 1988 to fiscal year 1991, the Procurement of Ammunition appropriation is slated to decrease by more than one third, from $2.3 billion to $1.5 billion. As a percentage of the total Army procurement budget, it decreases from 15.1 percent to 9.9 percent. Why does the Army give ammunition procurement such a low priority, both in absolute terms and as a percentage of the total Army procurement budget?

Answer. If I had the resources, I would put it into ammunition. What we had to do is balance where we put our money based on the level of resources we had available. Readiness and sustainability had to take a share of that reduction. What we tried to do is look at the kind of ammunition we needed for our combatant commanders and resource those. Ammunition lines not as critical as others were reduced. So I don't like what we had to do with the ammunition lines; but given the affordability problems we had, I think we have made the right funding decisions.

Question. Do these decreases reflect a decrease in the assumed threat, a decrease in training requirements, or a decrease in the calculation of war reserve requirements?

Answer. No. The threat and our requirements have not changed. Decreases in ammunition funding are based upon tough funding decisions.

Question. If training requirements have not decreased and if war reserve requirements have not changed, reduced ammunition procurement will require reductions in training or a slowing in war reserve buildup. What will be the specific impact on training and war reserve as a result of your fiscal year 1990/1991 budget?

Answer. We will fund the ammunition for near term readiness. There will not be a degradation in near-term readiness training as a result of reduction of the ammunition accounts. Where there is a reduction, we will not meet our goals in terms of days of supply for war reserves. We have made a conscious decision to provide the stocks for the most critical ammunition.

Question. What will be the impact of your budget on the employment levels at government ammunition plants?

Answer. The FY 1990/91 Budget reduces the workload effort at the government plants by 6,000 man years, from about 20,000 man years of work in the FY 1989 program to 14,000 man years of work for FY 1991. The exact number of people is not known, however man years is a rough equivalent of the number of people that would be impacted by the budget reduction. With the reduction of dollars going into the plants, there is a concurrent decrease in the man years of effort required at the plants.

Question. Is there sufficient funding in your 1990/1991 budget to keep all the active government ammunition plants in production? If not, which ones are being considered for closure?

Answer. No sir, there is not. In FY 1990 the Army's Ammunition program does not include a request for 155mm M483 Projectile. As a result, the Army will have to close its Mississippi Army Ammunition Plant (MSAAP) after the delivery of the FY 1989 program for the 155MM M483 Projectile. Mississippi AAP is a single product plant producing only the 155MM M483 Projectile. In FY 1991 the program for the 155MM M864 Projectile is reduced to 120,000. This quantity is insufficient to keep all the current producers active. At present both Scranton AAP and Louisiana AAP produce the projectile metal parts for the M864. The FY 1991 quantity of M864 is only enough to workload Scranton AAP or the metal parts line at Louisiana AAP. Similarly for the Load, Assemble and Pack for the M864 projectile Kansas AAP and Milan AAP will compete for the reduced quantity as there is not enough workload for the two plants. If Kansas AAP is unsuccessful in obtaining the production for the M864 it would be deactivated and reduced to only third party work.

Question. In the fiscal year 1988 budget, artillery ammunition accounted for 40 percent of procurement, while in fiscal years 1990 and 1991 it goes down to 31.5 percent and 20.1 percent. Tank ammunition, on the other hand, goes from 18.4 percent in fiscal year 1988 to 23.4 percent and 28.3 percent. What accounts for this dramatic change in your priorities?

Answer. Historically, there has been no effort by the Army to maintain a predetermined balance among various types of ammunition. Priority has been given to that ammunition that affords the Army the most overall benefit. Tank ammunition has received priority funding support to meet the challenges of a more capable threat.

Question. In the fiscal year 1989/90 timeframe, production of five different artillery rounds is slated to end. Have we reached the required days of supply for these rounds? If not, why is production stopping?

Answer. No. Three of the rounds are scatterable mines. We have had to make some tough decisions on other mine programs needed on the battlefield. We decided to accept some risk in order to fund other priority mine systems. The same is true for the decision to discontinue production of the 155mm DPICM M483A1. We are willing to accept present levels of supply in favor of increasing procurement of the 155mm Baseburner M864.

Question. Are further reductions to the ammunition procurement budget being considered as part of the Bush budget changes?

Answer. We do not plan to make any more reductions to the ammunition procurement budget.

Destruction of Chemical Weapons

Question. The Committee has been a strong supporter of the Defense Department's program to destroy chemical weapons, for which the Army is the lead service. The Committee has been particularly supportive of research efforts on cryofracture, which offers a potentially less expensive approach than the so-called baseline approach. Last year, Congress—all four Defense committees—agreed with the Department on a chemical weapons destruction program that included cryofracture. Why does the budget propose to terminate cryofracture research?

Answer. The cryofracture program was cancelled based on difficulties with schedules, costs and limitations of the technology. When terminated, it was four years behind the disassembly and incineration technology used in the Johnston Atoll Chemical Agents Disposal System (JACADS). Virtually all of the major program decisions regarding design, construction and equipment acquisition and installation will be made for the JACADS clones at the eight continential United States (CONUS) sites before we could complete cryofracture development and testing.

The building and testing of a cryofracture plant would have cost $200 million. Assuming no delays due to problems with environmental impact, testing, scheduling, equipment production and safety, it would only operate about seven to ten months before all of the chemical munitions were destroyed. In addition, demilitarization buys no increase in warfighting capability. To the DoD, investing in two technologies does not make good economic sense when the disassembly technology shows every sign of meeting or exceeding all requirements.

Even if the cryofracture program had matured at the same pace as the disassembly program, it still would have had additional limitations. First, it cannot handle bulk items (ton containers, bombs and spray tanks) which account for about 65 percent of the unitary stockpile. Second, it requires a cutting system, like the one in JACADS, to process M55 rockets. We have about 475,000 rockets at five CONUS sites and Johnston Atoll. Finally, while the two systems use similar incineration, pollution abatement and monitoring technology, the cryofracture system would most likely have worse problems. Instead of the several smaller and more manageable incinerators used by the disassembly process, cryofracture will use one massive rotary kiln to incinerate agent, explosive charges and metal parts simultaneously. We have never tested such a method.

After analyzing all of these factors and recognizing the need to fund other important programs with our limited resources, we decided to terminate the cryofracture program. We are confident the disassembly technology will complete the demilitarization program on time, within budget and, most importantly, with maximum safety for public health and the environment.

Question. Was terminating cryofracture proposed by the Army or elsewhere within the Department?

Answer. The Deputy Secretary of Defense made the final decision to terminate cryofracture. The decision arose from the requirement to trim the defense budget.

Question. Last year Congress appropriated $16.3 million specifically to continue cryofracture research, including the design of a full scale plant to demonstrate this technology. Why are you proposing to reprogram these funds?

Answer. OSD decremented the baseline procurement account by $16.3 million when they terminated the cryofracture program. We were directed to reprogram the cryofracture R&D dollars to procurement to compensate for the decrement.

Question. What will be the impact on the cryofracture technology base if this reprogramming is approved?

Answer. As part of the DoD decision to terminate cryofracture, we stopped all work on cryofracture last December. We stopped award of a contract to General Atomics Technology that would continue research, development, and testing at their facilities in San Diego, California, and we cancelled planned agent and munition fragment incineration tests at our Chemical Agent Munitions Disposal System (CAMDS) facility at Tooele Army Depot, Utah. The reprogramming action would officially remove the funds appropriated to support this work. We would apply the reprogrammed funds to procure equipment for the baseline facilities in the continental United States. Without these funds, we must decrement long lead-time equipment purchases for one of the three plants (Pine Bluff Arsenal, Arkansas; Anniston Army Depot, Alabama; or Umatilla Depot Activity, Oregon) scheduled to be constructed in 1991.

Question. Given that the first full-scale baseline plant is already six months behind schedule and not yet proven, do you consider this a prudent time to be abandoning cryofracture?

Answer. We developed too optimistic of a schedule for the first full-scale plant at Johnston Atoll. We should have anticipated more problems in recruiting and retaining skilled workers at this isolated island—760 miles from Hawaii. To overcome these problems, the contractor increased his incentives to help hire additional craftsmen and started working two, 12-hour shifts last November. We believe that we are now on top of these nagging problems associated with interfacing the computer and the operating equipment with all the interlocking safety features. There will be several months' delay before we are ready to start live operations as part of the operational verification test. However, the important point is that we have seen nothing that would reduce our confidence in the baseline technology. In short, we believe that it is prudent to focus our resources on the baseline system to safely destroy the unitary chemical stockpile by 1997.

Question. Could cryofracture also be used as a cost-effective method of destroying conventional ammunition?

Answer. Maybe. There are still a lot of unknowns associated with destroying chemical munitions using cryofracture. Chemical munitions contain far less explosive components than conventional munitions. The concept of freezing then fracturing munitions that contain large amounts of explosives in a large press with tremendous pressure needs even more study and analyses to ensure safety.

TANK RECOVERY VEHICLE

Question. Last summer, the Army completed a side-by-side test of two candidates for an improved recovery vehicle for tanks, a modified M-1 tank and a modified M-88 recovery vehicle. In December, the Army announced its selection of the M-88A1E1 and awarded a contract for additional testing. When will this testing be completed?

Answer. Technical and operational testing is currently scheduled to be complete by 31 October 1989. Test results will be used in support of an early fiscal year 1990 Milestone III production decision.

Question. The conference report on the fiscal year 1988 authorization required the Secretary of Defense to report by December 31, 1988 on which required operational capability is adequate to meet Army requirments and which recovery vehicle the Army has been directed to procure. Since the Army has already announced its decision, why has the report not yet been received?

Answer. The BMY candidate was selected on 16 December 1988 to continue with Full Scale Development to complete technical and operational testing between March and October 1989, leading to a production decision in early fiscal year 1990. Reports will follow completion of technical and user tests currently scheduled for completion on 31 October 1989.

Question. The current M88 vehicle cannot recover the M1A1 tank in many situations. If the M88A1E1 is not procured, how will tank recovery requirements be met in peacetime and in war?

Answer. The recovery mission would continue to be performed with the current safety restrictions in force, which is a M88A1 in front with a braking vehicle to the rear of the towed vehicle. The braking vehicle can be either another M88 or a M1A1 tank. This must be accomplished at extremely slow speeds (<5 mph) and requires close coordination between the towing and braking vehicles. The recovery could also be accomplished by towing the tank with another tank utilizing a tow bar. Both solutions require using valuable resources: either taking valuable M1A1's out of combat or using scarce M88's.

Question. What will be the near- and long-term impact on the M-88 contractor business base if this program does not proceed? What about the sub-vendor base?

Answer. In the near-term, the last M88A1 is to be delivered in August 1989, after which the line will go cold except for any foreign military sales cases. In the long-term, the M88A2 represents the only planned production on BMY's steel production line. Without the M88A2, BMY will not be able to maintain a warm vendor base.

Question. Does the possible closure of the BMY tracked vehicle facility, and the impact on the defense industrial base, concern you?

Answer. Closure of the BMY tracked vehicle facility would have serious implications on several other Army programs to include the

M109 Howitzer Improvement Program, M9 ACE, and the Field Artillery Ammunition Supply Vehicle; and would result in the loss of one of the combat vehicle production lines in the United States.

OPTEMPO

Question. The requirement for the C-1/C2 readiness for armored battalions is 850 miles per tank per year.

Requirement:	*Performance*
Actual 1986	830 miles
Actual 1987	800 miles
Actual 1988	725 miles
Estimate 1989	850 miles
Budget 1990	800 miles

Based on the changes in OPTEMPO during the last three years, how valid is the Army's requirement of 850 miles and has the Army done anything to examine the OPTEMPO requirement?

What is the right amount?

Answer. The Army continues to examine and refine the OPTEMPO concept. Our analysis indicates that within a "band" of 800 to 900 miles for an M1 tank, we can expect a tank battalion to have sufficient resources to achieve C1 or C2 level of training readiness. Recently, the Army has developed over 170 Battalion Level Training Models which analyze the miles/hours required to support training strategies that forecast various levels of training readiness in different type battalions and separate companies.

Question. To what degree was readiness affected in FY 1988 when the Army operated at a 725 miles per tank OPTEMPO?

Answer. As resources were constrained in FY88, training readiness for the 31 active major combat commands (divisions, separate combat brigades/regiments and Special Forces Groups) decreased. Commanders reporting "training" as the primary reason for not attaining their authorized level of organization (ALO) increased by 175% (4 to 11) during FY 1988. Over 50% of all major combat commands cited "insufficient funding" as the primary reason not attaining C1 in training. During this same period, commanders reporting funding as a resource constraint to training increased from 10% to a high of 55% in June 1988 and ended the year at 30%. With the additional training funds in FY 1989, training readiness for the first quarter for FY 1989 has improved for the 31 major combat commands. Units reporting C1, C2 or C3 have returned to the October 1987 levels—the best month in FY 1988. The number of units reporting training as the primary reason for not attaining ALO has decreased from 11 to 8 units with only one unit reporting "insufficient funding". Commanders reporting funding as a constraint to training has remained constant for the first quarter at 30%—in large part, the result of drawing down stocks of repair parts and other items during FY88.

Question. How valid is the Army's current estimate to operate at 850 miles in FY 1989?

Answer. We began the fiscal year with anticipation of recovering from the FY 1988 level to achieve a level of 850 miles in FY 1989. However, it appears we will actually execute at or around a level of 800 miles which is the level budgeted in FY 1990 and 1991.

Question. What would be the effect on readiness if the Army's OPTEMPO was funded at 750 miles rather than 800 miles? What would be the financial impact?

Answer. If the Army were resourced at 750 miles of OPTEMPO, we would expect our training readiness posture to approach that experienced in FY88. Specifically, there would be an increase in the number of units reporting "training" as the primary reason for not attaining ALO and units reporting "insufficient funding" as the primary reason for not attaining C1 in training readiness.

RESERVE COMPONENT AUTOMATION SYSTEM

Question. Secretary Marsh, the Congress has been struggling with the Army for a number of years now to get a program underway to provide basic office computers for the Army Reserves. Year after year your exercises show that we cannot mobilize the Army effectively within the required time frames because of lack of current information to quickly match personnel specialty skills to requirements and to match people with equipment among the 4,600 reserve installations in this country. How would you characterize the computer capability of the Army's reserve forces today?

Answer. The reserve forces have limited, non-integrated automation capability at unit level. The Reserve Component has some good systems, but they are a hodgepodge of hardware programs at various levels. There is limited interface between Standard Army Management Information Systems (STAMIS) and RC commands.

Question. Congress has appropriated about $200 million in fiscal years 1988 and 1989 for this purpose. How many computers have been purchased and fielded to the Reserves so far with this money? How has the money been used?

Answer. The FY 1988 Appropriations Act and accompanying language directed significant changes to the RCAS program. The Army has complied with these changes which have resulted in major modifications to the schedule for design, development, and procurement of RCAS. No computers have been fielded to the RC with the $200 million Congress has appropriated for this system because Section 8115 of the FY 1988 Appropriations Act states "none of the funds appropriated in this Act are available for procurement of mini- or micro-computers for the Army Reserve Component until the RCAS contract is awarded." The current schedule projects the RCAS contract award in FY 1992. The FY 1989 Appropriations Act slightly modifies the restrictions on the purchase of computers for the RC, but still prohibits the use of RCAS funds for this purpose.

Of the $90.9 million appropriated and statutorily restricted in FY 1988, $14.0 million of the operations and maintenance appropriations was spent on the Program Management (PM) Office operations. These funds provided civilian pay and travel for the PM staff and multiple support contracts for services such as preparation of the functional description. The remaining operations and maintenance appropriations ($53 million) expired at the end of FY 1988. These funds were unexecutable for RCAS under the current schedule and could not be used for other purposes due to statutory restrictions. The FY 1988 Other Procurement, Army (OPA) funds, which are available through FY 1990, have not been obligated due to statutory restrictions and the current acquisition strategy. Since the anticipated award date for the RCAS procurement is FY 1992, the FY 1988 OPA resources will most likely expire at the end of FY 1990.

In FY 1989, $109.9 million was appropriated and statutorily fenced for RCAS (Section 8084). To date, $49.3 million of operations and maintenance funds have been identified by the PM office as unexecutable and will expire at the end of the fiscal year. The operations and maintenance funds which will be spent will provide civilian pay and travel for the PM staff, PM office facilities, and multiple support contracts. None of the OPA funds have been obligated to date, and will be unexecutable under the current schedule.

Question. What progress has the National Guard Bureau made on describing what needs to be done in this program, in a document called the "functional description"?

Answer. The Army National Guard will conduct 5 regional workshops in April, 1989 to complete staffing of the final draft functional description by 1 May 1989. Workshops will cover all functional areas with each state and territory represented.

Question. Congress requires in law that this acquisition, which will ultimately cost between $.5 and 1.0 billion, be fully competitive and fully comply with the standard procedures of OMB Circular A-109. Does the Army plan to comply with the law as it is currently written.

Answer. Yes. Congressional language prohibits use of GFE. That in itself is not incompliance with standard procedures of OMB Circular A-109. The Army would like to comply with the standard A-109 procedures.

Question. Secretary Marsh, our former Subcommittee Chairman Bill Chappell obtained your concurrence with the approach that was eventually enacted into law in fiscal year 1988. Will the Army leadership honor your commitment to the Committee once you leave the Army?

Answer. The Army will always comply with the statutes in law.

Question. Is the RCAS program fully funded in your current five year plan supporting the fiscal year 1990 budget?

Answer. FY 1990 is fully funded to meet the RCAS development schedule and requirements. The last economic analysis of the RCAS, which was prepared in May 1988, did not cost the system in total compliance with Congressional guidance. A new economic analysis is being conducted in preparation for the fall Office of Secretary of Defense Major Automated Information System Review Council (MAISRC) Milestone I review. After the completion of this economic analysis and Milestone I approval is received, the Army will be able to adjust future funding requirements for RCAS.

Question. General Vuono, what is your commitment to this program? What has been your involvement in this program, and what have you done during the last two years to ensure that the requirements of the fiscal year 1988 Appropriations Act are met?

Answer. The Army is supporting the program. Efforts have been made to fully comply with the FY 1988 Appropriations Act. For example, these resources and manpower to support RCAS have been transferred to the National Guard Bureau.

Question. General Vuono, what priority does the 4-star commander in Chief of the Army Forces command, under whose authority the Army Reserves mobilize during wartime, attach to the RCAS program? What about the commander of the National Guard Bureau?

Answer. The National Guard Bureau holds this program as its top priority. Forces Command acknowledges the urgency of having a RC mobilization system. They are participating in the analysis of functional description to determine if this proposed system fulfills the mobilization needs of the RC.

ANTI-ARMOR PROGRAMS

Question. The Defense Department and the Congress have made significant investments in Army anti-armor capabilities in light of unexpected advances in the Soviet threat.

General Vuono, please outline for us the Army's overall anti-armor strategy. What is the overall plan and are we making progress?

Answer. The Army has moved aggressively to redress the armor anti-armor (A3) balance relative to Soviet improvements both now and for the future. We completed a detailed Army-level Net Assessment in 1987 for the entire A3 functional area which identified specific problems. In response to the Net Assessment, we commissioned the Armor Anti-Armor Special Task Force (A3 STF) to develop an A3 Modernization Plan which focuses all A3 efforts into a single integrated approach. The A3 Mod Plan will be provided to Congress in the near future. It lays out our detailed strategy for the future. In addition, the initial work of the A3 STF resulted in immediate initiatives which are reflected in the current budget for both A3 systems and munitions. In summary, the Army is making progress in Armor Anti-Armor; we know where we need to go and we are completing a detailed plan to get there.

Question. What is your plan for heavy anti-tank weapons? We understand there have been problems with the hypervelocity missile testing program. Please elaborate.

Answer. The Army plans to replace the Improved TOW Vehicle (ITV) with the Line of Sight Antitank (LOSAT) system, a dedicated antitank system. The missile to be fired from LOSAT is the Kinetic Energy Missile (KEM), also known by the prime contractor's nomenclature as the Hypervelocity Missile (HVM).

To protect the Army's investment in the 13,000 plus other TOW platforms in the field the Army will improve the TOW fire control system and field the TOW 2B missile. These two improvements will extend the systems effectiveness through the late 1990s. To extend the systems beyond this time frame, the Army intends to develop a TOW-Follow-On Missile. This TOW-Follow-on commonly has been-called the Advanced Missile System Heavy or AMS–H. A prominent option for AMS–H is to grow the Advanced Antitank Weapon System-Medium (AAWS–M). As for the status of the LOSAT (KEM/HVM) program, four Army/Marine Corps missiles have been fired as part of the Joint (AF/Army/USMC) Joint Services Demonstration Program (JSDP) with no target hits achieved. The primary problems lie with the fact that the current missile motor is too smokey to allow update commands to be provided to the missile and that the targeting pod being used to track/update the missile is inadequate for the task at hand. The Army has decided to discontinue its efforts in the JSDP and focus on the Army's follow-on proof-of-principle (POP) effort. LTV Corp has brought in Texas Instruments in a team arrangement to perform the LOSAT proof-of-principle effort. This effort will use a new and improved fire control system, developed by Texas Instruments, and a minimum smoke motor. Although the Army certainly would have preferred more success in the JSDP, the overall program is moving forward with no show stoppers identified.

Question. What is the concept for development of an antitank "smart" submunition for the ATACMS missile—called "ATACMS Block II?"

Answer. We are currently evaluating several seeker technologies that offer promise of providing the capability and robustness that we will need in a Block II, "smart" submunition. These technologies include millimeter wave radar, that we are evaluating as a part of the multi-national Terminally Guided Warhead program for the Multiple Launch Rocket System, and two-color Infrared, that we are evaluating in the ATACMS Block II proof-of-principle program.

Our current timetable calls for the selection of the best technology for full scale development in a "neck-down" decision in late fiscal year 1991 or early fiscal year 1992.

In parallel with these seeker/submunition development efforts we are beginning the design work to integrate these submunitions into the missile. This will shorten the time that it takes to develop and field the Block II system once we make our "neck-down" decision.

We plan to field the Block II system in the mid-1990's.

Question. Last year, many of your anti-tank R&D programs were underfunded and the Congress provided many add-ons. What is the situation this year?

Answer. In the fiscal year 1990 RDT&E budget, all of our anti-tank programs are fully funded.

HEAVY FORCE MODERNIZATION

Question. The budget contains funds in many programs for a new initiative which the Army calls "Heavy Force Modernization."

General Vuono, please explain the concept of Heavy Force Modernization.

Answer. The concept of Heavy Force Modernization is a sub-set of the Army's total force modernization effort. It focuses on our strategy for modernizing the Close Combat Heavy Force. Heavy Force Modernization is based on the results of thorough assessment of current heavy force capabilities relative to the future requirements of the battlefield, the need to accelerate fielding of advanced technology, and an understanding that we must find a better, more efficient way of doing business.

Heavy Force Modernization is a disciplined and prioritized outgrowth of the work initiated by the Army's Armored Family of Vehicles Task Force (AFV–TF). The task force identified significant warfighting improvements and operational savings through a family approach for heavy systems, which emphasized commonality, multi-mission capabilities, common modular components, and mission specific modules designed into systems from their inception. Based on funding realities and our most critical future battlefield requirements, we have identified six critical systems of the twenty-four variants as Heavy Force Modernization package one.

The six systems in Heavy Force Modernization are the Block III tank, Future Infantry Fighting Vehicle, Combat Mobility Vehicle, Advanced Field Artillery System, Line of Sight Anti-Tank System and the Future Armored Resupply Vehicle. The first four systems will share a common heavy chassis; the latter two will be medium chassis systems. These six heavy force systems were selected to provide the maximum payoff in increased lethality, survivability, and compatible mobility on the 21st century battlefield.

The other key point concerning Heavy Force Modernization is the imperative to field modernized systems with enhanced capabilities faster than our potential adversaries. To counter the Soviet Union's ability to field major new heavy force systems roughly every seven to ten years, the Army must rapidly accelerate the transition of technology to existing or emerging systems. To accomplish this we have focused the Army's tech base to mature pacing technologies advances at the right time relative to the projected threat, and expanded the use of Advanced Technology Transition Demonstrators (ATTD) to reduce the time and expense associated with a traditional demonstration/validation phase. After a Milestone I Decision for HFM package one, each of the six HFM systems will proceed to its own Milestone II Decision for Full Scale Development (Milestone V for Block III tank).

In summary, the purpose of Heavy Force Modernization is to meet the evolving and improving threat by selectively modernizing our most critical Heavy Force systems. The strategy entails an innovative development and acquisition approach which will get these enhanced systems into the hands of our soldiers as quickly as possible.

Question. Congress provided add-on funds last year to accelerate upgrades to the M-1 tank—called M-1 Block II—and new funds to define requirements for future upgrades for the M-1 tank—called Block III. Under this new strategy, does M-1 Block III mean further M-1 upgrades or do you envision starting development of a new tank program?

Answer. The tank that follows Abrams M1A2 may either be a third block of product improvements to the M1 or a new tank. The Army's acquisition strategy provides industry with competitive opportunities to offer solutions in response to performance oriented RFP's; the Army will not dictate the design, but will establish performance bands. Whether or not it is a Block III to the current chassis or a new tank, we need to start fielding such a machine by 1997 in order to overmatch the Future Soviet Tank (FST) III. The Milestone V Product Improvement Program apparatus of the DoD Acquisition Directive allows for timely fielding and causes the same level of oversight and DoD decision as a Milestone I new start. The benefit in using a Milestone V approach is the reduction in program documentation and the streamlining of the process by elimination of heel-to-toe development if a new start is imposed. The envisioned improvements to the Block III tank are: a new gun, autoloader, countermeasure technologies, advanced power pack, improved track and suspension, weight reduction (from 70 tons to a goal of 55 tons) and introduction of modular armor to improve survivability.

Success of the Abrams M1A2 is key to development of the Block III. The following M1A2 technologies, which improve survivability, lethality, and fightability, will be incorporated into the Block III tank: Standard Army Vetronics Architecture, signature reduction, advanced target acquisition, and mutual positional navigation. Without M1A2 technology, cost and schedule risks increase for Block III.

Question. Name the other vehicles besides the tank which are funded under this initiative and explain the urgency of requiring their "new start" development programs in fiscal year 1990.

Answer. No individual system new starts are designated for FY 1990. What is scheduled are a series of Advanced Technology Transition Demonstrators (ATTD). These will provide the technological feasibility and operational potential of pacing technologies. The Milestone I Decision in 2d Qtr FY 1990 will determine whether to proceed with the concept of a family of heavy force systems. The separate systems, which will then proceed on their own developmental schedules are the Block III tank, Future Infantry Fighting Vehicle (FIFV), Advanced Field Artillery Systems (AFAS), the Future Armored Resupply Vehicle—Ammunition (FARV-A), Line of Sight Anti-Tank (LOSAT) and the Combat Mobility Vehicle (CMV).

The urgency of beginning HFM developmental programs is driven by a detailed analysis of projected Soviet modernization and the Army's warfighting needs to counter this threat. Put simply, we must develop now to field the enhanced systems required for the future battlefield. The centerpiece of HFM is the Block III tank, which we must field by FY 1997 to overmatch Future Soviet Tank III (FST III). Since Army doctrine requires our heavy forces to operate in combined arms operations, the HFM companion systems to the Block III tank will be brought on line as rapidly as possible to provide compatible survivability and mobility for systems which operate in the same battlefield environment.

Question. Explain how you have restructured your "technology base" projects to integrate into this initiative.

Answer. The 1987 Defense Science Board (DSB) Summer Study on Technology Base Management recommended careful selection and timely execution of Advanced Technology Transition Demonstrations (ATTD) to more rapidly transition technology to systems. The use of ATTDs was recommended by the DSB in lieu of the traditional, more costly, and time consuming process that included a demonstration/validation phase. The Army has embraced that recommendation and created several ATTDs which focus on specific technology barriers that must be overcome prior to entering Full Scale Development. The creation of modernization plans, such as the Heavy Force Modernization Plan (HFM), allows us to identify definitive windows of opportunity for technology insertion for next generation systems and product improvements. By identifying the pacing technologies that must be demonstrated and when those demonstrations must be accomplished to meet system schedules, we have therefore been able to restructure the technology base to meet these requirements. To carry out this plan we have restructured or added the following demonstrations to support Heavy Force Modernization: (*General*)—Component Advanced Technology Test Bed and Common Chassis ATTD; (*Specific*)—Advanced Field Artillery System ATTD, Future Armored Resupply Vehicle—Ammo ATTD, Combat Mobility Vehicle ATTD, and the Future Infantry Fighting Vehicle ATTD.

Question. Is there complete consensus in the Army over the direction of the initiative and the vehicles to be covered by it?

Answer. Yes. The Heavy Force Modernization strategy and its priority systems have been determined with extensive consultations and comprehensive input from senior Army leaders. It is our consensus that this approach is a blueprint for the disciplined evolution of the Army's heavy force into the 21st century.

Question. Explain why you want to pursue a "common chassis" for this program. What independent, analytical data exists to show this concept to be cost effective?

Answer. There are two key reasons why the Army has decided to adopt a common heavy and medium chassis approach to development of its next generation of heavy force systems. The first reason is efficiency. A common chassis generates savings by reducing the number of separate items requiring development and testing. Further savings are achieved in reduced facilitization costs and increased production quantities of common components and repair parts. In addition, common chassis will simplify training of maintenance personnel and vehicle crews.

The second and most important reason for a common chassis are the tactical and operational advantages gained by systems that have compatible mobility and survivability. Our forces will also be "lightened" and more agile through the reduction in the diverse types of repair parts, tools, etc. which must be moved on the battlefield.

The Army has examined the feasibility and cost effectiveness of a family of close combat systems. Initial analysis conducted internally by the Armored Family of Vehicles Task Force, in conjunction with Army Materiel Command and the Training and Doctrine Command, demonstrated the cost effectiveness of a common chassis. A comprehensive Cost and Operational Effectiveness Analysis (COEA) has been initiated and will be completed prior to the Defense Acquisition Board Milestone I Decision in 2d Qtr FY90. In addition, ongoing Concept Exploration/Definition contracts involving three industry teams will provide separate cost analyses before the Milestone I Decision.

LANCE MISSILE

Question. The budget proposes beginning a $1 billion program to replace the Army's nuclear capable Lance missile for NATO which is obsolete. Lance is used to support the European theater. What is your requirement to replace the Lance missile?

Answer. The Lance Missile System was fielded in 1972 with a required service life of five years and a desired life of ten years. System reliabilty is degrading due to age. A Service Life Extension Program, begun in 1987, will maintain present capabilities through the mid-1990's at which time a follow on system should be fielded. Current Lance has a low rate of fire, requires a lot of soldiers to maintain and fire it, doesn't have the range to hit all targets of the threat lead operational echelon, and is not survivable enough, given the threat's modernization program. Baseline requirements for replacing Lance are contained in the 1983 Montebello Decision, FY90-94 Defense Guidance, Mid-Term Objective #10, and is further delineated in SACEUR's 1985 and subsequent 1988 Nuclear Weapons Requirement Studies.

Question. What is the current opposition in West Germany to this proposal?

Answer. Since 1983, the NATO alliance, including the German government, has continuously supported NATO nuclear modernization, including the development of a Follow On To Lance. Current opposition within Germany is focused on whether there is a requirement to make a decision now to deploy Follow On To Lance to Europe given the current political considerations. The requirements for modernization is fixed and is not in dispute; the requirement for a deployment decision, in a specific theater, is flexible and can be made at an appropriate point in the program.

Question. Has Lance replacement become more urgent due to the INF treaty?

Answer. NATO nuclear modernization requirements, of which the Follow-On to Lance is part, stem from the 1983 Montebello decision and were identified well before the INF Treaty. The Treaty clearly makes the requirements to modernize NATO's nuclear forces even more urgent, but this requirement would exist whether or not the United States had signed the Treaty. In this regard, it is important to recall that the Warsaw Pact continues to upgrade its nuclear forces that are not being eliminated under the INF Treaty.

Question. What are the arms control implications of mixing conventional and nuclear munitions?

Answer. The United States has a long standing policy of not negotiating dual capable systems.

Question. Is this wise?

Answer. Yes, in this sense a dual capable MLRS launcher would enjoy the same protection as dual capable cannon artillery and aircraft. Dual capability enhances the contribution to the conventional battle in that forces are not set aside for a nuclear role only.

Question. Do you favor dedicated launchers for the Lance replacement?

Answer. No, the idea of a dedicated nuclear force to fire FOTL is not acceptable from a survivability/force structure viewpoint.

Question. The Armed Services Committees have legislative restrictions against providing a nuclear capability to the ATACMS missile. What are the implications for your Lance replacement program?

Answer. None. We have studied a nuclear version of ATACMS as a candidate for the FOTL program and concluded that a nuclear ATACMS would not meet the SACEUR maximum range and inflight survivability requirements. Our current acquisition strategy for FOTL is to conduct a full and open competition for development of a new nuclear only missile to be fired from a MLRS-type launcher.

120MM MORTAR

Question. The Committee has been a long time supporter of the Army's 120mm mortar program. Last year, the Army was requested to submit an updated Mortar Master Plan. What is the status of the plan?

Answer. The revised Army Mortar Plan is current in draft form within the Army's Training and Doctrine Command. The Army hopes to be able to submit the plan to Congress in the near future. In general, the plan reaffirms the Army's intent to replace the 4.2 inch mortar with the 120mm mortar.

Question. What alternatives are being considered with respect to the 4.2 inch mortar, which the 120mm mortar was to replace?

Answer. Due to overall funding limitations, the Army will be unable to replace the 4.2 inch mortar as expeditiously as it might want. As a result, the 4.2 inch mortar is expected to remain in the Army inventory for a significant period of time. The Army's intent is to make as little additional investment in the 4.2 inch mortar as possible; however, we are considering options to improve current operational deficiencies through potential modifications to either the tube or the existing HE cartridge.

Question. Is it possible that we will end up with four different mortars with four different families of ammunition?

Answer. The Army Mortar Plan identifies requirements for three mortar categories: the 60mm light mortar for light infantry companies; the Improved 81mm medium mortar in infantry battalions; and the 120mm heavy mortar at battalion level in armored, mechanized, and motorized divisions. During the period of transition from the 4.2 inch mortar to the 120mm mortar system, the Army will have four different families of mortars and ammunition.

Question. When will the Army submit its procurement strategy for the 120mm mortar and what alternatives are being considered?

Answer. The 120mm Mortar Acquisition Strategy was approved by the Program Executive Officer during December 1988, and can be made available following Department of the Army staffing. Also during December 1988, the Army reported the results of the Cost Effectiveness Comparison of potential domestic sources for manufacturing the mortars under the provisions of the Arsenal Act, as directed by FY 1987 and 1989 Joint Authorization language. The result of that comparison is that all onshore production of the weapons will be at Watervliet Arsenal. Offshore production of 63 weapons and ammunition to conduct Operational Testing, and to equip the 9th Infantry Division upon successful completion of testing, as permitted by the FY 1987 Authorization Act will be provided by Martin Marietta Ordnance Systems of Bethesda, Maryland, the winner of the Competititve Weapon Evaluation completed during 1987. Upon successful completion of testing of the family of Enhanced Ammunition currently in development, Martin Marietta Ordnance Systems will also provide the first two years of onshore production of ammunition. Following the first two option years, production facilities for the family of enhanced ammunition will be competitively determined.

Question. What is the status of testing for the mortar and ammunition?

Answer. The weapons and NDI ammunition are currently completing the Safety Certification Testing required prior to beginning Operational Testing. Problems have been encountered with respect to the NDI ammunition in the areas of high blast overpressure in the carrier variant of the weapon, and erratic performance in a cold environment. The blast overpressure problem is considered solvable and should permit Operational Testing to begin on a delayed schedule. The cold performance issue is currently being assessed. At this point, we are hopeful Operational Testing of the weapons can proceed; however, unless the erratic performance of the NDI ammunition can be corrected in a timely manner, we will be unable to Type Classify the NDI ammunition. The result would be an inability to achieve early fielding of the 9th Infantry Division with NDI ammunition, and we would need to wait for the family of enhanced ammunition to achieve initial fielding. Operational Testing is currently scheduled to begin during May 1989.

TEN-TON TRUCK

Question. The fiscal year 1988 authorization act required the Army to buy no less than 4,737 Heavy Expanded Mobility Tactical truck (HEMTT). In fiscal years 1988 and 1989 about 3,000 such trucks were funded. Why does the fiscal year 1990 budget fail to fund additional HEMTT procurement?

Answer. The Army will procure a total of 2,954 HEMTTs in fiscal years 1988 and 1989. The fiscal year 1990 budget does not fund the HEMTT because the HEMTT is considered unaffordable based on its relative priority to other essential Army programs and limited available TOA. OSD, based on the Army's request to seek such relief, has requested relief from the remainder of the Congressionally directed quantity of 4,737.

TACTICAL WHEELED VEHICLE MODERNIZATION PLAN

Question. Last year, the Armed Services Committees directed the Army to submit a plan for modernizing the tactical wheeled vehicle fleet over the next decade. Please summarize your plan as it exists today.

Answer. The Tactical Wheeled Vehicle Modernization Plan is very near completion and is expected to be delivered to Congress in the near future. The plan will provide the roadmap for tactical wheeled vehicles procurements over the next 30 year period.

The tenets of the plan address distribution priorities; stable funding levels; reductions in peacetime sustainment costs through a service Life Extension Program (SLEP) for the medium fleet and vehicle retirement policy; and a reduction in the variety of vehicles currently in the inventory by introducing families of vehicles such as the family of Medium Tactical Vehicles (FMTV), the Family of Heavy Tactical Vehicles (FHTV), and a single vehicle for the Light Fleet, the HMMWV.

Question. What will your plan cost and how does this compare to the current five year budget?

Answer. The plan identifies an optimum funding level of $1.2 billion (FY89 constant $'s) per year should resources be available. Recognizing we are faced with constrained resources, the plan establishes a baseline funding level of $750 million (+/−15%) for tactical wheeled vehicle procurements and $50 million per year for trailer procurements.

Final determination of the necessary budget adjustments to support an amended budget have not been made. Once final determination is made, a comparison to the current five year budget can be presented.

Question. What changes in truck procurement programs are being considered as part of the Bush budget revisions?

Answer. The final determination of the Bush revisions have not been made. It would be premature to identify any potential changes in truck procurements until OSD makes it's final determination.

Question. What tactical trucks are currently in the shortest supply in the Army inventory and what older vehicles are in the greatest need of replacement?

Answer. The most significant shortages and the oldest vehicles, in the greatest need of replacement, are in the Medium Fleet (2½ and 5T). The plan presents a balanced approach for modernization and replacement with the procurement of the Family of Medium Tactical Vehicle (FMTV).

Question. For years, this Committee has criticized "vehicle requirement creep" as the overall tactical vehicle requirements have inched up over time with apparently insufficient review. We have also encouraged the substitution of commercial vehicles for tactical vehicles where possible. How does your plan address these concerns?

Answer. The Tactical Wheeled Vehicle Modernization Plan (TWVMP) recognizes that truck requirements are driven by the number of Army units, doctrine, and force modernization efforts. Truck requirements are dependent variables in all force modernization issues.

The plan recognizes that our Concept Based Requirements System determination process and the tactical wheeled vehicle requirements are correct. Tactical Wheeled Vehicle requirement increases receive a great deal of scrutiny by the TRADOC Tactical Wheeled Vehicle Requirements Management Office to preclude vehicle requirement creep. Additionally, we are currently reviewing the War Reserve Stock computation methodology.

We have identified many missions that can be satisfied with commercial vehicles such as the Commercial Utility Cargo Vehicle (CUCV) and the M915 Tractor. The plan considers the use of commercial vehicles and supports the extension of the CUCV useful life to 14 years. As vehicle requirements are identified, NDI substitution is given first priority to meet the requirement.

BALLISTIC RESEARCH ON CATS

Question. The members of the Committee are being inundated by letters from around the country protesting the $2 million annual research grant from the Army to Louisiana State University for ballistic and head wounds research using cats as subjects.

Secretary Marsh, are you familiar with this issue? (If not, please look carefully at it.)

Answer. Yes. The United States Army Medical Research and Development Command (USAMRDC) is funding research by Dr. Michael Carey at Louisiana State University under USAMRDC Contract No. DAMD17-86-C-6098. This contract, not a grant, has a specified statement of work, specific deliverables, and annual funding of $340 thousand per year for a total of $1.7 million over five years.

Question. What is the value to the Army of such research?

Answer. Head wounds are the most lethal battle wounds accounting for approximately half of all combat deaths. Of the patients who survive, fifty percent suffer disabling post traumatic complications (such as seizures) for the remainder of their lives. Although progress in our understanding of brain function and in neurological research has been extensive, the treatment of brain trauma has not been significantly enhanced, and the incidence of combat deaths due to brain wounding has not decreased since World War II.

The reduction of mortality and morbidity requires that studies be conducted which describe the effects of projectile (bullet) injuries to the brain. These studies will lead to a more comprehensive understanding of brain injuries and permit the development of new methods and drugs for the treatment of brain injuries, hastening the recovery of soldiers with brain wounds.

The development of a standardized anesthetized animal model and controlled methods for wounding will allow Dr. Carey to establish a bench mark for quantifying the advantages and disadvantages of new or proposed therapies, drugs, and surgical treatment of brain injury.

Question. How does head wound data on cats translate into head wound data for human beings?

Answer. Cats were selected for use in this study for several important reasons. First, the cat has proportions of grey and white brain matter similar to that found in the human brain. Brain edema (or swelling) associated with trauma occurs in the white matter, making the cat an ideal model for studies which must translate to human trauma. Baseline data for brain trauma research by civilian investigators has also been developed primarily in cats.

Another factor for selecting the cat is its size in relation to the spherical projectile. The 0.030gm spherical (pin head size) projectile, is the smallest that can be delivered under precisely controlled conditions. Use of this projectile in smaller animals would produce an unrealistic wound and would not provide meaningful information.

Use of the cat represents a compromise between animal size, brain anatomy and size, and projectile size to obtain the best physiological results possible to simulate human brain wounds. The experimental design minimizes the number of animals required and supports future, nonanimal modeling related research.

Question. Why do you think this research is in full compliance with the legal restrictions in annual appropriation acts which prohibit use of DOD funds for research on dogs and cats?

Answer. Secretary of Defense Weinberger implemented an interim policy on the use of animals in ballistic wound research and training on 28 July 1983. That policy was rescinded on 4 January 1984, with the issuance of the Memorandum on the Use of Animals in Training. This Memorandum states that "dogs and cats will not be purchased or otherwise used for the purpose of training Department of Defense students or other personnel in surgical or other medical treatment of wounds produced by any type of weapons." Public Law 100-463, Section 8046, reiterates the language used in Secretary Weinberger's memorandum.

Both the memorandum and the Public Law are directed at the use of companion animals for the sole purpose of training personnel in established methods and techniques. Doctor Carey's research is not directed at, nor does it involve training. It is concerned with developing a thorough understanding of the mechanisms of ballistic injury to the brain and identifying means for improved treatment of humans with traumatic brain injuries.

The cats are anesthetized prior to injury and are free of pain. The wound animals receive intensive nursing care during their post-wounding convalescence to minimize pain and suffering. They are housed in warmed cages, given intravenous and topical antibiotics as well as maintenance fluids as needed during their recovery.

Question. Does this grant fully comply with DOD regulations?

Answer. Yes. Dr. Carey's research is in compliance with all DOD regulations, directives and guidelines. In addition, the experimental animal use protocol has been reviewed and approved by the Louisiana State University Animal Care and Use Committee and the Surgeon General's Animal Use Review Office. The Louisiana State University animal facilities are inspected annually by the U.S. Department of Agriculture and the Contracting Officer's Representative, a veterinarian, and are fully accredited by the American Association for Accreditation of Laboratory Animal Care. This accreditation ensures that all animal research adheres to strict standards for preventing or alleviating pain and suffering, that the facility provides a clean, nonstresssful, socially-conductive environment, and that adequate veterinary care is provided by a veterinarian certified by the American College of Laboratory Animal Medicine.

Every possible effort is made in this research to obtain the vitally needed answers to alleviate suffering and preserve life following brain injury in humans by using the best possible animal model available to study these wounds while being sensitive to the well-being of the test animals.

Question. When is this research scheduled to end?

Answer. The contract was initiated in 1986 and is scheduled to expire 29 September 1991.

ARMED FORCES RECREATION CENTER (AFRC)

Question. The House Armed Services committee has authorized the construction of a 450-room hotel in southern Germany, using non-appropriated funds totaling $65 million. Construction is expected to start this spring and be completed by December 1991.

AFRC provides off-duty recreation for 700,000 military members and their families stationed in Europe.

Mr. Secretary, if U.S. troops are withdrawn and their dependents come home, is it sensible to build this multi-million dollar hotel?

Answer. Yes, it is still practical to build the 450 room hotel complex in Garmisch. In order to continue the mission of AFRC to provide recreation for the soldiers, their families and other authorized users at a fair and reasonable rate, it is vital that the consolidation plan be executed for Garmisch. The overall renovation and consolidation plans are being pursued with the premise that there will be no withdrawal. The operations could sustain a relatively large draw-down of soldiers and their families, based upon the projected increases in market capture associated with the provision of increased quality facilities and programs. Contingency plans including total troop withdrawal have been considered in the planning stages of the overall rehabilitation of the AFRC facilities to include the possible recoupment of NAF investments on all AFRC lease hold improvements. As the project progresses, and external variables become more certain, we will be in a better position to evaluate the need to exercise these contingencies.

Question. It is envisioned that the AFRC in Europe will be a self-sustaining operation similar to the recreation and hotel area in Hawaii. How can the center accomplish this if the number of users is reduced?

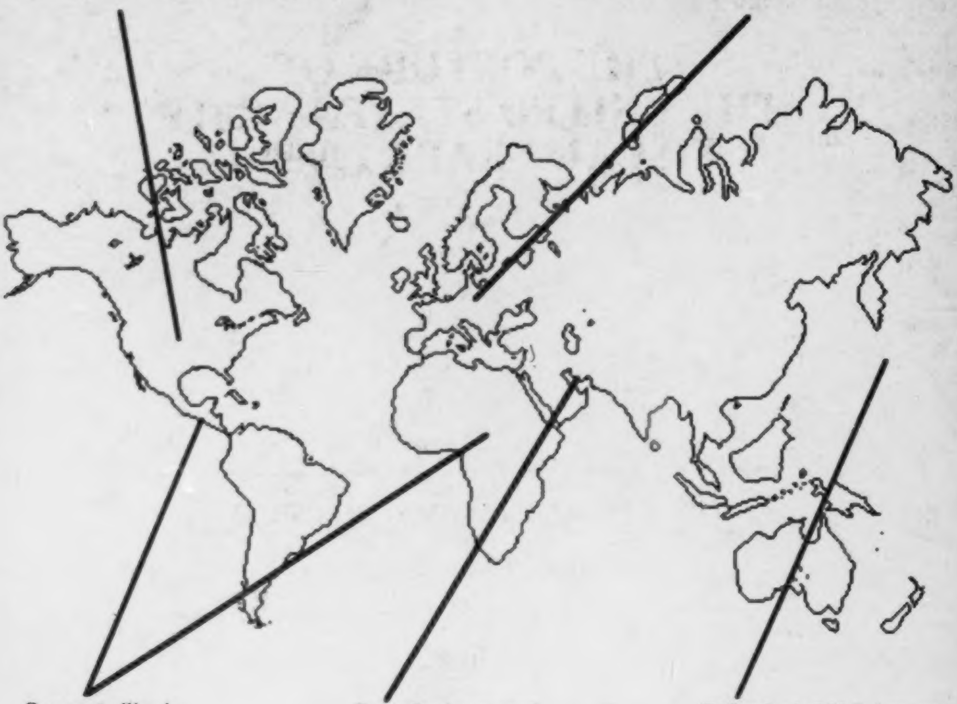
Answer. It is AFRC's goal to operate on a self-sustaining basis, using appropriated funds only to support those activities that are entitled to them. We believe that AFRC could sustain its operations even if a relatively large troop withdrawal were to occur. AFRC is currently capturing only a small percentage of its available market due to its physical plant consisting of pre-World War II facilities. With the building of a new state of the art facility, we anticipate a market increase in demand, and that AFRC will capture a much larger portion of the available market. AFRC's financial success and long-term viability depend upon the successful completion of on-going major capital expenditure initiatives. Contingencies have been considered for sustainment of operations in the event of major reductions in troop strength. Market strategies have been developed which would enable the maximum realization of the demand market population which in the future may be reduced.

[CLERK'S NOTE.—End of questions submitted for the record. The fiscal year 1990 Army Posture Statement referred to on page 8 follows:]

The United States Army
Posture Statement FY 90/91

The Year of the NCO

Strategic Missions For Army Forces



Maintain, with other services, a strategic reserve capable of responding to threats in the Western Hemisphere and other contingency areas.

Deter or if necessary defeat a Warsaw Pact attack on NATO and maintain its territorial integrity and security

Support allies in
Asia
Latin America
Africa

Deny Soviet control of Persian Gulf oil

Defend, vital U.S. interests in the Pacific

Respond to other threats to U.S. interests anywhere in the world

Trained and Ready, Today and Tomorrow

★

THE POSTURE OF THE UNITED STATES ARMY FISCAL YEARS 1990/91

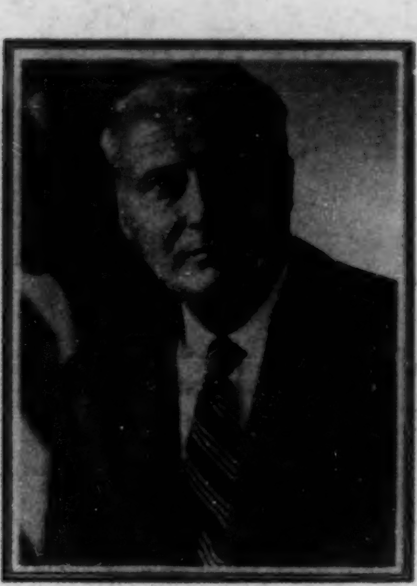
★

by

THE HONORABLE JOHN O. MARSH, JR
and
GENERAL CARL E. VUONO

before

Committees and Subcommittees
of the
UNITED STATES SENATE
and the
HOUSE OF REPRESENTATIVES
First Session, 101st Congress



Foreword

Today our Nation enjoys the two greatest blessings any country can desire -- peace and freedom. In many areas of the world aggressors are counting the cost of their behavior. It is no accident that this uneasy calm coincides with the revitalization of our Nation's armed services and the reinvigoration of our Army as a strategic force. Through our soldiers we demonstrate the capability and the will to defend our own interests and those of our allies. The predictable result is increased security.

Today's Army can fulfill the mission it has been given by the American people -- deter war and win in combat if required. Our ranks are filled with high quality soldiers and civilians. Our training is tough, demanding, and realistic. Our forces are properly tailored to meet the threat. Our equipment is the best in the world. Our stocks and resources needed to sustain a fight are steadily improving. Today's Army is trained and ready.

But tomorrow's threats will be even more formidable. The forces and philosophies which oppose democracy have not disappeared; they have merely paused to consider their own failures. Improvements in Soviet capabilities, rising sophistication among terrorists and Third World nations, and worsening social and economic trends suggest increasing challenges for the future. Military challenges will most likely arise from ground forces. They must be answered by capable, competent, confident ground forces of our own.

We can maintain peace and freedom for ourselves and our children, but it will not be free or easy. We must maintain the quality of our Army and its operational effectiveness. We must provide our combat commanders with the resources they need for the missions they are required to execute. We must support the National Security Strategy, particularly at this critical moment in overseas negotiations. In short, we must continue to field an Army which is trained and ready, today and tomorrow.

Carl E. Vuono
General, U.S. Army
Chief of Staff

1775

John O. Marsh, Jr.
Secretary of the Army

CONTENTS

Page

Forward by Secretary of the Army and Chief of Staff iii

I. THE ARMY AS A STRATEGIC FORCE
- A. Supporting the National Military Strategy 1
- B. Vision 2
- C. Supporting the CINCs 3
- D. Formulating the Budget 4

II. THE CHALLENGES
- A. Evolving Threat 7
- B. Scarce Resources 13

III. TRAINED AND READY TODAY
- A. Readiness 17
- B. Doctrine 19
- C. Force Structure 23
- D. Training 26
- E. Quality People 35
- F. Modernization 46
- G. Sustainment 61
- H. Complementary Programs 68

IV. TRAINED AND READY TOMORROW
- A. The Army's Continuing Strategic Role 71
- B. Doctrine for Tomorrow 72
- C. Training for Tomorrow 72
- D. Quality Soldiers for Tomorrow 73
- E. Technology for Tomorrow 74
- F. Systems for Tomorrow 77

V. RESOURCES FOR THE MISSION
- A. Status of the FY89 Budget 81
- B. FY90/91 Budget Overview 81
- C. Positive Aspects of the Budget 82
- D. Shortcomings of the Budget 82
- E. Summary 83

List of Acronyms 84

Index 86

LANDES-
GRENZE

I. The Army as a Strategic Force

A. Supporting the National Military Strategy

The United States is a global power with global interests. Threats to those interests arise from a variety of sources, include all levels of conflict, and occur in all regions of the world. As the leader of the free world, we are engaged in multi-faceted competition with the Soviet Union and its allies. At the same time, Third World nations pose an increasing threat as many gain the technology to produce and employ sophisticated weapons. Moreover, terrorism directed against U.S. citizens and property throughout the world remains a constant threat.

In the face of this wide variety of threats, the U.S. military strategy is *to deter war, to control escalation in wars that do start, and to terminate such wars on terms favorable to the United States and our allies.* Trained and ready Army forces, based overseas and backed by rapid reinforcement from the United States, provide unique capabilities to accomplish this strategy.

In most areas of the world the major military threat to U.S. interests is posed by the ground combat capability of potential adversaries. Countering these threats requires a land force capable of projecting prompt, sustained military power anywhere in the world. This force must be globally deployable, tactically mobile, and sustainable. Army forces fill this need today; they must continue to do so tomorrow.

Facing page: Today's trained and ready Army keeps a watchful eye on peace around the world. Clockwise from top left: in the Sinai, along the West German border, on the Korean DMZ, in Alaska.

THE MISSION OF THE UNITED STATES ARMY

> **"It is the intent of Congress to provide an Army that is capable, in conjunction with the other armed forces, of:**
>
> **1) preserving the peace and security, and providing for the defense, of the United States, the Territories, Commonwealths, and possessions, and any areas occupied by the United States;**
>
> **2) supporting the national policies;**
>
> **3) implementing the national objectives; and**
>
> **4) overcoming any nations responsible for aggressive acts that imperil the peace and security of the United States.**
>
> **...It shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land."**
>
> **Title 10,**
>
> **United States Code**

Today, forward deployed U.S. ground forces are our Nation's most visible symbol of resolve, particularly in Europe and Northeast Asia. Conventional ground forces are an effective and acceptable instrument to counter mid-intensity warfare in regional conflicts. Army special operations and contingency forces are trained and equipped to respond decisively in military operations short of war, as well as to support heavier forces as required. Finally, Army theater nuclear forces support deterrence by providing an essential link between our conventional forces and intercontinental nuclear forces.

War demands the ability to defend and control territory and people, and dominate an adversary's war-making potential, none of which is possible without a trained and ready Army. *The U.S. Army, like the Nation's intercontinental nuclear capability, is a strategic force.* It has been irreplaceable in the past, and will be so in the challenging years ahead.

A TRAINED AND READY ARMY IS FUNDAMENTAL TO DETERRENCE

B. Vision

The Army must be trained and ready, today and tomorrow, to carry out its roles as a strategic force anywhere in the world, anytime. It must have the capabilities, competence, and confidence to maintain deterrence where the risk to our survival is highest, as well as to cope with the immediate contingencies that continually arise. It must achieve this goal by focusing on operational forces, and the support of warfighting soldiers, units, and leaders.

Our Nation and the Army must continuously apply the lessons learned from the American military experience. Guided by a demanding military strategy and a realistic view of the threat, the Army must maximize every opportunity to provide the land forces our Nation requires. And it must project ahead, taking prudent steps today to shape the Army our Nation will need tomorrow.

As we look to the future, we have a significant challenge in stretching our resources to produce the quality and size land force our Nation's military strategy and commitments demand. We must be careful to maintain the mix of readiness, modernization, force structure, and support that minimizes the risks to our Nation. We must continue to provide tough, demanding, realistic training, with particular emphasis on the development of leaders at every level. *For the foreseeable future, there will be no substitute for quality, no alternative to readiness.*

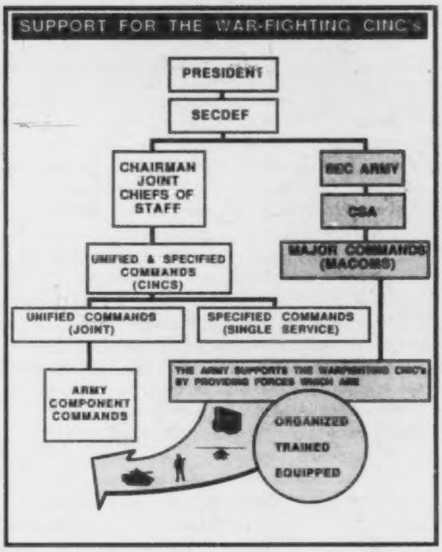
We have processes in place to continuously update our doctrine and refine our long-range plans. Our future doctrine will enable us to design our forces to meet challenges in particular areas, but remain sufficiently flexible to operate across the entire spectrum of conflict.

Guided by our doctrine, the Army views modernization as a continuous process. Our modernization strategy leverages both concepts and technology to produce the greatest warfighting advantage by pitting our enduring strengths against key threat vulnerabilities.

The mix of forces -- active and reserve; heavy, light, special operations, and support; forward deployed and based in the United States -- must be continuously tailored to the evolving U.S. strategic requirements.

Also without question, the Army will continue to rely -- perhaps even more heavily tomorrow than today -- on the Navy and Air Force to transport its units rapidly to trouble spots around the world.

Today, in spite of constrained resources, *we cannot retreat from our obligations to the future.* We must allocate the resources today to ensure the continuous



SUPPORT FOR THE WAR-FIGHTING CINC's

PRESIDENT
SECDEF
CHAIRMAN JOINT CHIEFS OF STAFF
SEC ARMY
CSA
MAJOR COMMANDS (MACOMS)
UNIFIED & SPECIFIED COMMANDS (CINCS)
UNIFIED COMMANDS (JOINT)
SPECIFIED COMMANDS (SINGLE SERVICE)
ARMY COMPONENT COMMANDS
THE ARMY SUPPORTS THE WARFIGHTING CINC's BY PROVIDING FORCES WHICH ARE
ORGANIZED
TRAINED
EQUIPPED

modernization of the Army. This applies to all areas needed to retain our best soldiers; provide the education, training and sustainment base; and conduct the research and development needed to shape tomorrow's Army.

As we move ahead, we will have to keep our defense program and our arms control efforts in harmony. Arms control can provide an important adjunct to our defense capabilities, but cannot replace them.

The Army welcomes General Secretary Gorbachev's announcement of unilateral conventional force reductions. We must realize, however, that a parity between the capabilities of the conventional forces of NATO and the Warsaw Pact is far from being achieved.

The West must approach the conventional negotiations with patience, strength, and unity. We must negotiate more with an eye to the security of the United States and our NATO allies after the agreement than on the ratios of equipment or forces that are reduced. As was the case with the Intermediate-Range Nuclear Forces (INF) negotiations, success in conventional arms control will depend on our continuing demonstrated will to modernize our forces.

The Army, today and tomorrow, is the ultimate symbol of American will. It is an indispensable component of the U.S. strategy of flexible response, and essential to deterring or defeating an adversary's adventurism. *The United States Army has been, is and will remain a strategic force.*

C. Supporting the CINCs

The Army organizes, trains, and equips land forces, but they are actually employed by Unified and Specified Commanders-in-Chief (CINCs) located throughout the world. Reporting directly through the Chairman of the Joint Chiefs of Staff (JCS) to the Secretary of Defense and the President, the CINCs are responsible for the actual conduct of wartime operations. Satisfying the CINCs' warfighting requirements in consonance with national priorities and preparing the Army for the future are primary Army responsibilities. This requires the Army to establish priorities carefully and allocate assets systematically.

The Army controls this process through a series of processes, plans and directives that include:

☐*Army Long Range Planning Guidance* to provide broad direction for the next 30 years;

☐*The Army Plan* that delineates force and resource allocations for the next 7 years and resource guidance for 15 years out;

☐*The Army Program Objective Memorandum* that allocates resources to specific programs for the next five years; and

WARFIGHTING CINCs

UNIFIED COMMANDS	ARMY COMPONENTS
US EUROPEAN CMD (USEUCOM)	U.S. ARMY EUROPE (USAREUR)
US PACIFIC CMD (USPACOM)	U.S. ARMY WESTERN CMD/ U.S. ARMY JAPAN/EUSA (WESTCOM/USARJ/EUSA)
US ATLANTIC CMD (US LANTCOM)	FORCES COMMAND* (FORSCOM)
US SOUTHERN CMD (USSOUTHCOM)	U.S. ARMY SOUTH (USARSO)
US CENTRAL CMD (USCENTCOM)	FORCES COMMAND* (FORSCOM)
US SPACE CMD (USSPACECOM)	U.S. ARMY SPACE COMMAND (USASPACECOM)
US SPEC OPS CMD (USSOCOM)	1ST SPECIAL OPERATIONS COMMAND (1ST SOCOM)
US TRANS CMD (USTRANSCOM)	U.S. ARMY MILITARY TRAFFIC MANAGEMENT COMMAND

* PROVIDES FORCES TO LANTCOM AND CENTCOM AS REQUIRED. FORSCOM IS ALSO A SPECIFIED COMMAND, CHARGED WITH THE LAND DEFENSE OF THE CONTINENTAL UNITED STATES (CONUS).

SUPPORTING COMMANDS

MACOMS	HEADQUARTERS
ARMY MATERIEL COMMAND	ALEXANDRIA, VA
INTELLIGENCE & SECURITY COMMAND	ARLINGTON, VA
TRAINING & DOCTRINE COMMAND	FT. MONROE, VA
CORPS OF ENGINEERS	WASHINGTON, D.C.
INFORMATION SYSTEMS COMMAND	FT. HUACHUCA, AZ
CRIMINAL INVESTIGATION COMMAND	FALLS CHURCH, VA
HEALTH SERVICES COMMAND	FT. SAM HOUSTON, TX
MILITARY DISTRICT OF WASHINGTON	WASHINGTON, D.C.
FORCES COMMAND	FT. MCPHERSON, GA.

☐*The Army Budget* which, following congressional approval, provides funds for the execution of specific programs on a biennial basis.

Traditionally, the Army has provided support to the CINCs through the Army Component Commanders. Several initiatives have been taken by the Army since 1987 to provide the CINCs increased access to the Army resource planning process at every level. Acting directly and through their Component Commanders, CINCs review the risk assessment by region, participate in the apportionment of forces and resources, and highlight their own needs by the submission of integrated priority lists. While there are never enough resources to satisfy all requirements, this process ensures that the CINCs' highest priorities are reflected in the allocation of support to maintain our forces trained and ready.

OUR HIGHEST PRIORITY IS MAINTAINING THE QUALITY OF THE FORCE

D. Formulating the Budget

The FY90/91 Army Budget reflects difficult decisions. The funding levels are insufficient for many programs needed to achieve and sustain the Total Army as the fully ready, modernized strategic force our National Military Strategy requires. Many of our previously planned programs have been eliminated or reduced. To minimize the risk to our Nation and to maximize the Army's ability to execute its part of the National Military Strategy with the resources allocated by DOD, we applied the following guidelines in formulating the Army Budget:

MAINTAIN ESSENTIAL FORCE READINESS

Our highest priority in the present and future is to maintain the requisite level of readiness by recruiting and retaining quality soldiers. This quality gives us the ability to get the most from the relatively small size of our forces and the flexibility to conduct operations across the full spectrum of conflict anywhere in the world, anytime.

Similarly, because training is the cornerstone of readiness, and because training in peacetime saves lives in war, we have allocated resources to continue to improve our ability to conduct tough, realistic training. This means funding not only the training events themselves, but also the installation functions that support our soldiers, civilians, and their families.

Readiness also demands competent, confident leaders. The Army's leader development process has been allocated the resources necessary to provide today's quality soldiers the superb leaders who can take them to higher levels of performance, as well as to shape the Army of the future. In allocating our readiness funds, the Army has met the highest priority needs of the CINCs, particularly for forces that are deployed forward or are needed for rapid reaction to contingencies around the world.

PROTECT ESSENTIAL SUSTAINABILITY

The Army has used the limited resources it could allocate to sustainability to meet the CINCs' highest priority requirements in all theaters. Similarly, in the sustaining base, funding levels permitted meeting only the most urgent facility requirements.

CONTINUE MODERNIZATION AT A REDUCED PACE

To permit the continuous modernization required to cope with the threats to our security worldwide, the Army adopted a new modernization strategy. This strategy enables us to modernize the Total Army according to our national strategic priorities. This means giving the top priority to the forces that would be first to face our most capable threat, the Warsaw Pact, as well as those forces needed for instant response to contingencies around the world.

The Army took into account both the needs of the CINCs, as well as the contribution of each program to the Army's overall warfighting capability. We made tough decisions, reducing or eliminating programs that contributed the least.

The Army is fully supportive of efforts to acquire equipment in the most cost effective manner possible. Our FY90/91 Budget includes a variety of measures, including multiyear procurement, to achieve this end.

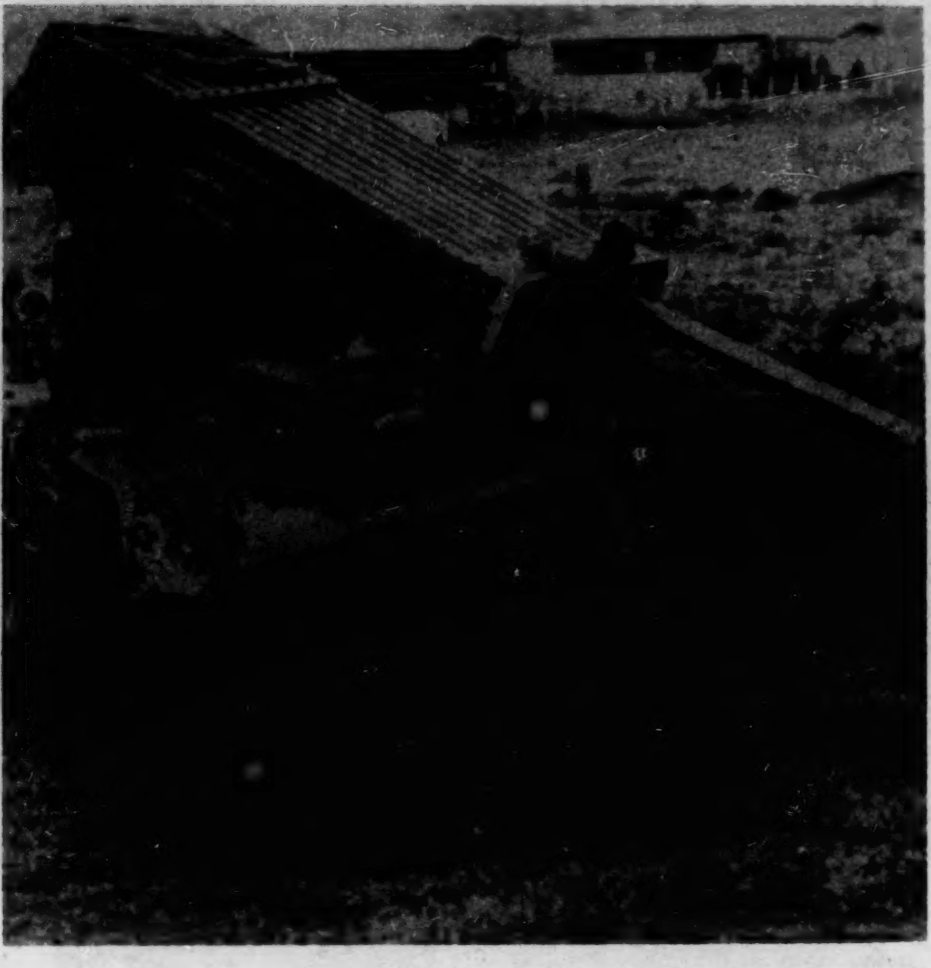
MINIMIZE FORCE STRUCTURE IMPACT

The Army must maintain the appropriate mix of forces to fulfill its strategic roles around the world. JCS threat assessments recognize that of all our services, the Army's force structure is the least adequate to meet today's strategic requirements.

The Army has designed the current structure to provide the maximum capability to support today's strategic requirements. The Active Component structure is at the lowest level since 1950. Further reductions are not warranted in the absence of a reduction of the threat or U.S. worldwide commitments.

THE CLEAREST SYMBOL OF OUR NATIONAL WILL IS: A TRAINED AND READY SOLDIER

U.S. soldiers move out on patrol in Honduras during Operation Golden Pheasant.



II. The Challenges

A. The Evolving Threat

The threat to U.S. and allied security interests in the 1990s will be more complex and technologically sophisticated than ever before in our history.

The success of U.S. foreign and defense policies is reflected in the conciliatory tone a number of our potential adversaries have recently adopted. This is a positive development that we should encourage. Nevertheless, U.S. military posture must be designed to meet our potential adversaries' long-term capabilities, not their current stated intentions. The conventional force capabilities of our potential adversaries are growing faster than our ability to counter them, just at the moment that our conventional forces have assumed more of the burden of deterrence.

Despite Soviet rhetoric, Soviet military forces continue to grow in quality and overall combat capability. NATO has long relied on the quality of its materiel to offset the Warsaw Pact's quantitative superiority. However, in a number of significant areas, Soviet ground force equipment matches or even exceeds the quality of the West's equipment. The JCS concluded last year that the Warsaw Pact is modernizing in-place forces significantly faster than NATO, and that the United States needs to "regain the qualitative advantage" in ground combat systems. This will continue to be the case even if the Soviet force reductions are made as announced by General Secretary Gorbachev on 7 December 1988 at the United Nations. Soviet forces in other theaters also continue to improve, although at a slightly slower pace than in Europe.

While Gorbachev's announced force reductions and plans for a defensive-oriented reorganization of forces remaining in East Europe are encouraging, we expect that the USSR will continue to modernize its nuclear forces, conduct vigorous research in all aspects of strategic defense, and pursue the exploitation of space to support military operations.

In the Third World, conflict is pervasive and often threatens U.S. security interests. Many developing countries are obtaining extremely sophisticated weapons systems. More than a dozen developing nations have 1,000 main battle tanks or more. The proliferation of surface-to-surface missiles and chemical warfare in the Middle East and elsewhere is particularly troubling, as is the prospect of nuclear proliferation. Future conflicts in the Third World may be intense and deadly. Moreover, the problem of terrorism directed against U.S. citizens and property throughout the world, including in the United States itself, continues to grow.

In short, the world is changing in unpredictable ways and the threats our Army is designed to answer are increasingly complex.

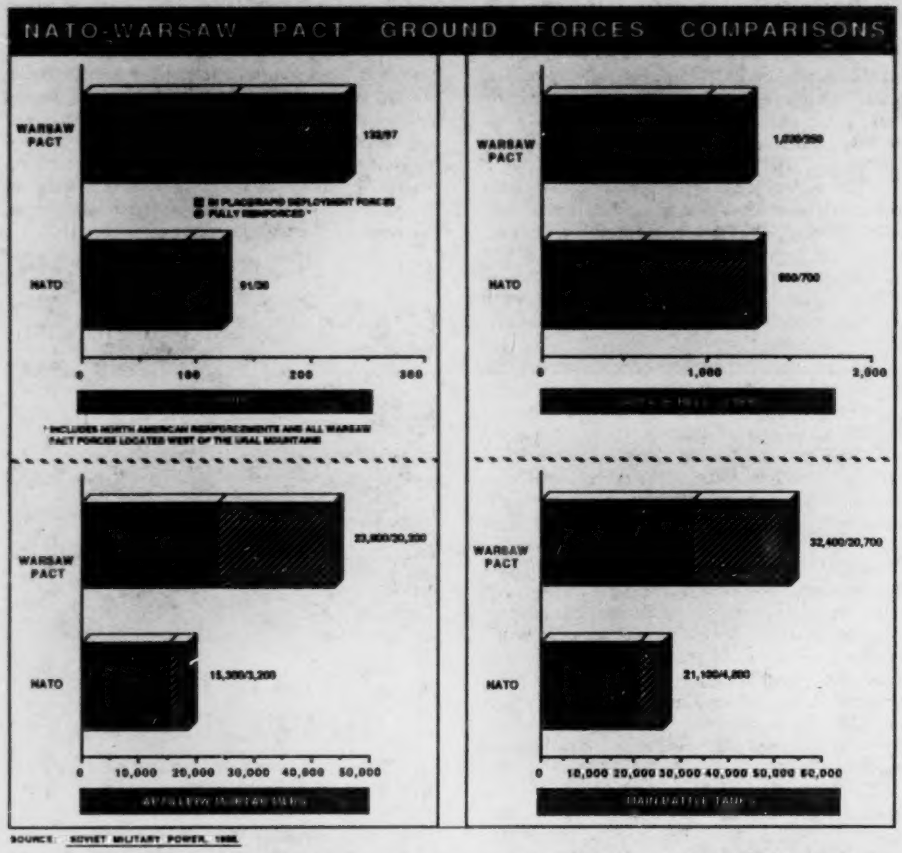
Facing page: Sandinistian soldiers prepare a Soviet made multiple rocket launcher for firing in Nicaragua.

1. THE SOVIET THREAT

The military capabilities of the Soviet Union are continuing to improve. The breadth and pace of ongoing Soviet military modernization programs underscore the high priority Soviet leaders continue to place on military power. In the long run, Gorbachev's economic reforms are most likely to benefit the Soviet military by providing both the money and modern industrial base necessary for the production of advanced weapon systems, especially for conventional warfare.

Now that the INF Treaty is in effect, the Soviets are reaffirming the primacy they place on their conventional warfare capabilities. We expect to continue to see new conventional systems fielded and forward deployed.

Soviet troops decontaminating equipment.



SOURCE: SOVIET MILITARY POWER, 1988

The Soviets have built an enormous military machine. They have more than 200 ground force divisions with 1,900,000 soldiers; they field over 53,000 tanks, over 60,000 armored personnel carriers and infantry fighting vehicles, 1,600 surface-to-surface missiles -- far more than any other nation on earth; far more than could possibly be needed for defense.

The announced implementation of a 500,000 man reduction in Soviet forces along with cuts in divisions, tanks, and artillery is a welcome step -- *if* the reductions take place, and *if* the cuts produce a meaningful reduction in Warsaw Pact offensive capabilities. These announced reductions, coupled with Gorbachev's domestic agenda, suggest that there is pressure to reduce the near-term commitment to defense programs that consume 15 to 17 percent of the Soviet gross national product.

However, even with these announced reductions in the forward area, the Warsaw Pact still enjoys a significant advantage in troop strength, tanks, armored vehicles, artillery, and aircraft and still maintains the forces needed to support offensive action. Over the past two decades, the Warsaw Pact's massive investment in warfighting capability, led by that of the USSR, has permitted it to achieve significant quantitative force advantages over NATO in both nuclear and conventional weaponry. These force advantages are directed toward the defeat of NATO's forces in Central Europe within 30 days. This operation would ideally be conducted entirely with general purpose forces to minimize the probability that NATO would use nuclear weapons.

In Europe, qualitative and quantitative improvements in Soviet forces continue to drive the imbalance of forces in the Warsaw Pact's favor. These improvements include:

☐Continued deployment of the T-80 main battle tank and the new BMP-2 infantry fighting vehicle. In the "Atlantic-to-the Urals" region the approximate Warsaw Pact to NATO ratio for tanks is nearly 3:1; for armored personnel carriers and infantry fighting vehicles, well over 2:1.

☐Development and deployment of conventional deep attack capabilities such as highly accurate short range ballistic missiles (SS-21, 100 km range), new multiple rocket launchers (MRL) such as the BM-27 220mm system, and improved self-propelled cannon artillery systems. The approximate Warsaw Pact to NATO ratio for MRLs is 15:1; for cannon artillery, 3:1.

☐Continued development of new helicopters with both ground attack and air-to-air combat capabilities.

☐Development and deployment of enhanced offensive air and air defense capabilities, such as the FLANKER and FULCRUM aircraft, and the SA-11 and SA-12A missile systems. The approximate Warsaw Pact to NATO ratio for fighter/interceptors is 4:1; including bombers and ground attack aircraft, it remains more than 2:1.

The Soviet fire support threat merits special mention. Fire support, predominantly field artillery, furnishes almost 80 percent of the combat power which Soviet doctrine says they will focus to achieve a breakthrough in an attack. The number of Soviet artillery systems has grown steadily over the past 20 years. Exacerbating the quantitative imbalance is a modernization effort that sharply reduces the qualitative advantage that the United States and its NATO allies once enjoyed.

The Soviet field artillery modernization program has fielded new fire support systems at a rate five times that of the United States. The lethality, ranges, and accuracies of new Soviet fire support systems will increase the combat capability of units where they are introduced. To some degree, these qualitative improvements will compensate for any changes to force structure which may result from unilateral or negotiated reductions.

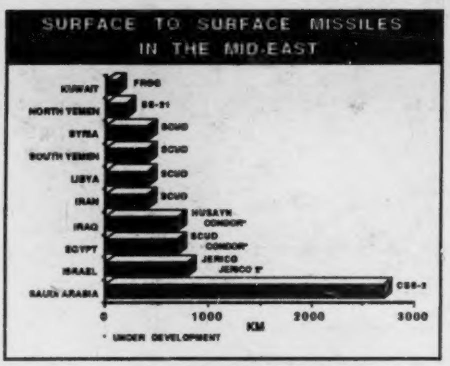
While the Soviet military threat to the United States and its allies is greatest in areas contiguous to the USSR, our Army must be prepared to confront Soviet or Soviet-sponsored forces in other areas of the world. The Soviets are pursuing a number of programs aimed at upgrading their ability to project military power to non-contiguous areas, including the expansion of air and sea lift for ground forces, and increased Soviet access to facilities outside the USSR.

Finally, the USSR and its allies employ a variety of military assistance programs as a means of gaining influence in the Third World. The purchase of large quantities of Soviet arms creates dependence on Soviet sources for spare parts. A large presence of Soviets or their allies offering "technical assistance and training" frequently follows. Although increased costs and the desire to control some regional conflicts are forcing the Soviets to become more selective in their aid programs, Moscow remains the largest supplier of weapons to Third World states.

2. THREATS IN THE THIRD WORLD

The Third World has undergone a dramatic qualitative and quantitative expansion of military forces. Nations that may have been dismissed two decades ago as insignificant military powers now possess large stocks of modern weapons. Increasing numbers of precision munitions, fire-and-forget anti-armor and air defense weapons, sophisticated signal and communications equipment, and motorized and mechanized systems are available. Even when these countries do not pose a direct threat to the United States, they can influence regional military balances and threaten less capable neighbors.

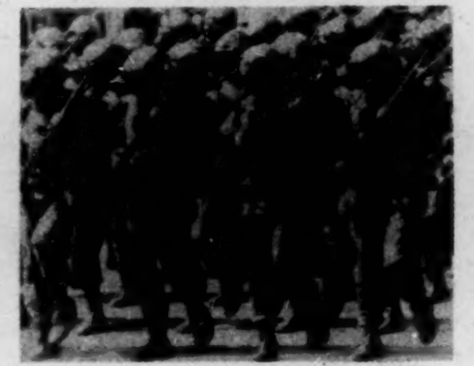
For example, chemical weapons are rapidly becoming the "poor man's" weapon of mass destruction. These weapons are neither difficult nor expensive to produce. The Iraqi and Iranian use of chemicals in the Gulf War is likely to encourage other combatants. A number of Third World countries are also acquiring the long range surface-to-surface missiles that could be used to deliver conventional and chemical warheads anywhere within their regions.



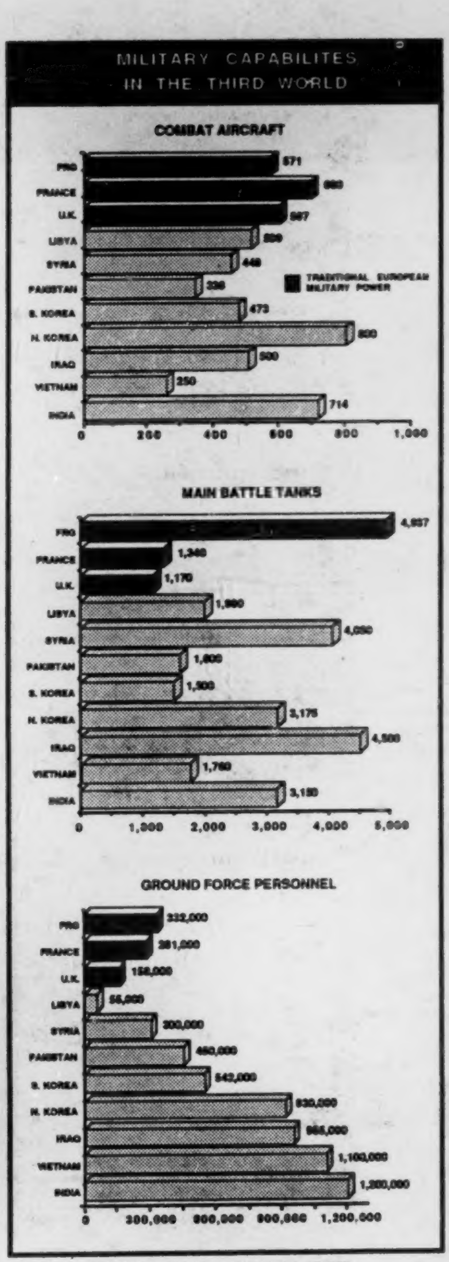
SOURCE: THE MILITARY BALANCE 1988-89

Libya provides a case in point of how a Third World regime can threaten U.S. interests. In the early 1960s, Libya was an insignificant regional actor with a small military force. Today, it is one of the most heavily armed nations in the world, with almost as many combat aircraft as West Germany, and more tanks than Great Britain or France. While the combat proficiency of Libya's armed forces is not high, with the numbers of these forces and the quality of their equipment, Libya represents a significant potential threat to Western interests in Africa. Additionally, Libya now possesses the largest chemical weapons complex in the Third World and has the potential to produce large quantities of chemical weapons. Since Libya has been linked to terrorist groups, the possibility that chemical weapons might be used by terrorists is a growing concern.

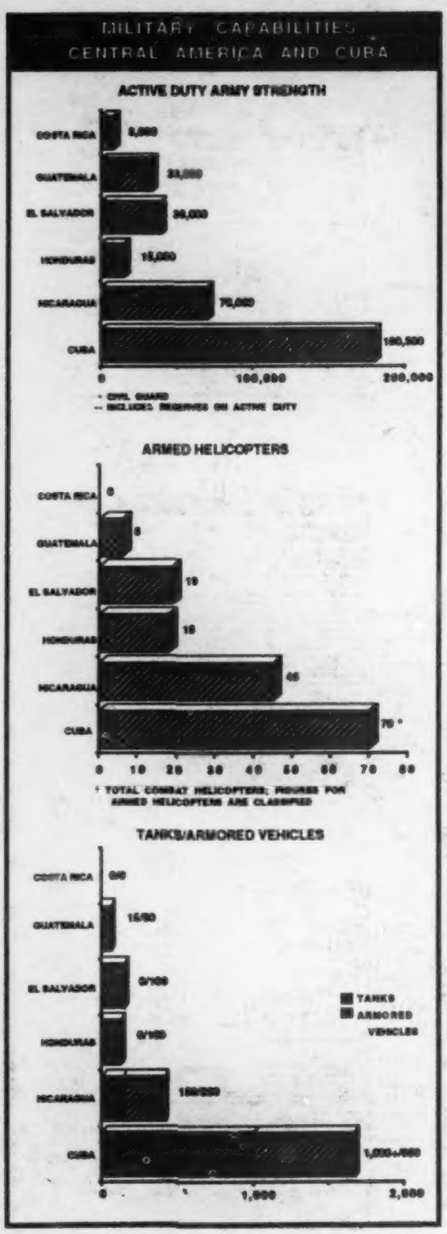
In Latin America, military improvements in both Cuba and Nicaragua continue unabated. Despite improved superpower cooperation, the Soviet Union con-



Soldiers in chemical protective suits on parade in Iran.



SOURCE: INTERNATIONAL INSTITUTE FOR STRATEGIC STUDIES, THE MILITARY BALANCE, 1988-89.



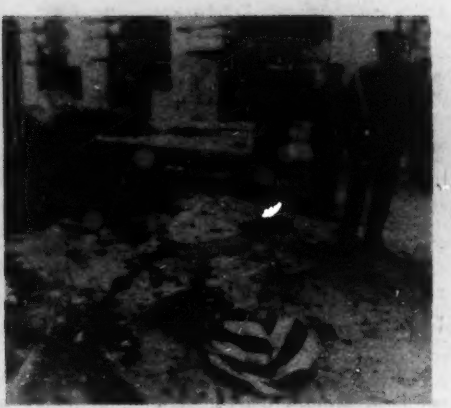
Soviet made tanks in Nicaragua.

tinues to support the Sandinista regime. More military and military-associated equipment was delivered to Nicaragua from the Soviet bloc in 1987 than in any previous year. Deliveries in 1988 remained close to this record rate. Indigenous Marxist insurgent movements and the proliferation of a drug culture in Latin America increase instability and threaten U.S. interests in the region.

Both Latin and South America are affected by a number of adverse trends which afflict much of the Third World. The combination of religious and ethnic rivalries, massive foreign debts, faltering economies, drug trafficking, and the proliferation of cheaper and more destructive weapons is manifested in rising violence and instability. Exploitation of these trends by political revolutionaries such as M-19 (Columbia), *Sendero Luminoso* (Peru), and *Todo por la Patria* (Argentina) threaten both civilian populations and their legitimate governments.

In Asia, Vietnam has consolidated its military power and now has the world's third largest army, with 1.1 million men in the regular army and another million in the militia. Thailand, Vietnam's nearest noncommunist neighbor, is outnumbered approximately 7:1 in manpower and about 4:1 in tanks and armored personnel carriers. The Korean peninsula remains tense with over a million men under arms, and with great pressure on the South Korean government to speed progress toward reunification. The Philippines continues to be plagued by a strong Communist insurgency.

In short, socio-economic conditions in the Third World are worsening despite tentative advances toward democracy. At the same time, military capabilities are steadily rising, especially in the area of ground conventional forces. This grim combination of trends seems to portend increased violence and instability around the world.



Five people were killed, including a U.S. servicewoman, when a car bomb exploded outside the USO club in Naples, Italy – April, 1988.

3. TERRORISM AND DRUGS

International terrorism has become a significant challenge to U.S. interests, citizens, and military forces around the world. Terrorism is abetted by the ease of international travel, the accessibility of arms and explosives, and the worldwide publicity afforded each incident. Some foreign governments employ terrorist groups and exploit terrorist incidents as a means to destabilize opponents. Terrorism gives these governments a cheap alternative to open, armed conflict, and permits them to influence international politics.

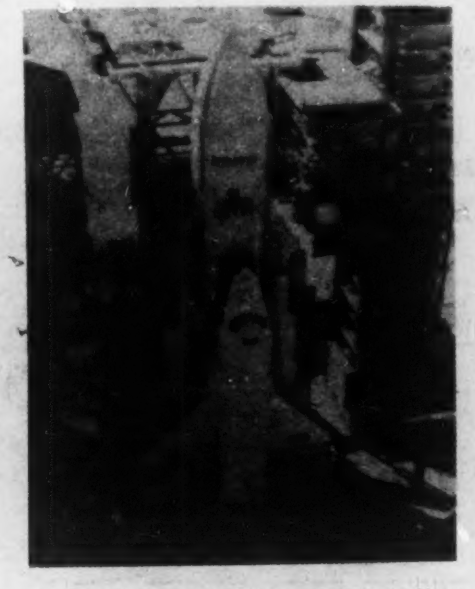
Bombings and armed attacks are the usual tactics of terrorists. The radio controlled bomb which killed the U.S. Defense Attache in Greece in June 1988, and the attempted assassination of eight U.S. enlisted men in July 1988 are recent examples. During 1987, the last year for which complete figures are available, three U.S. Air Force personnel were killed in the Philippines, and 36 military and 9 military family members were injured worldwide. This continuous and pervasive threat caused the Army to adopt increased and costly antiterrorist measures to protect the Army worldwide, and to tailor selected forces for counterterrorist operations in a variety of operational environments.

In Latin America, the increasing involvement of terrorist groups in illegal narcotics trafficking compounds the threat of terrorism by offering lucrative sources of revenue, and providing a worldwide smuggling network that can procure arms and explosives for terrorist organizations.

4. TECHNOLOGY TRANSFER

The modern weapons the Army buys give us an advantage over an enemy only as long as we maintain a quality force and our technological lead. Research and development investments are wasted if we let potential adversaries exploit our technology rather than forcing them to spend time and money developing their own. Illegal technology transfer to the USSR has saved the Soviets billions of rubles and years of development effort while providing their armed forces with more accurate cruise missile guidance systems, better radars, and quieter submarines. At the same time, our need to achieve standardization and interoperability with our allies, and to share with them the burdens of developing new weapons, requires that we share some of our leading technology, increasing the risk of loss.

To maximize the benefits of cooperation while minimizing the associated risks, we must have a clear understanding of which technologies are most critical and require special protection. During FY90/91 the Army will expand its effort to identify critical technologies through the Weapon System Technical Assessment and Advanced Technology Assessment pro-



The U.S. and Soviet space shuttles bear a remarkable resemblance.

grams. These programs have already paid dividends by permitting prudent technology transfer in allied cooperative development efforts, such as the Multiple Launch Rocket System, Terminal Guidance Warhead, and Autonomous Precision Guided Munition programs.

5. HOSTILE INTELLIGENCE AGENCIES

While Gorbachev makes overtures to the West, efforts by Soviet and other Warsaw Pact intelligence services to obtain Western technology and intelligence have increased. A vast array of human and high-technology collection systems are targeted against the U.S. Army. Other foreign countries, many of them ostensibly friendly to the United States, also target their intelligence services on us to gather information that benefits them directly, and may become available to more hostile powers, to include the Soviets and their allies. In FY88, Army counterintelligence received 1,230 reports of possible espionage directed against the Army. Investigations resulted in 168 confirmed or highly probable instances of hostile intelligence involvement -- an increase of over 100 percent from FY87. Three Americans and three foreign nationals were arrested for intelligence actions against the Army.

Indications are that the Army can expect a still greater increase in hostile collection activities in FY90/91. Army efforts to neutralize hostile collection will require increased use of computer systems to aid in counterintelligence analysis, state-of-the-art technical surveillance countermeasures equipment, and an aggressive security program.

6. THREAT SUMMARY

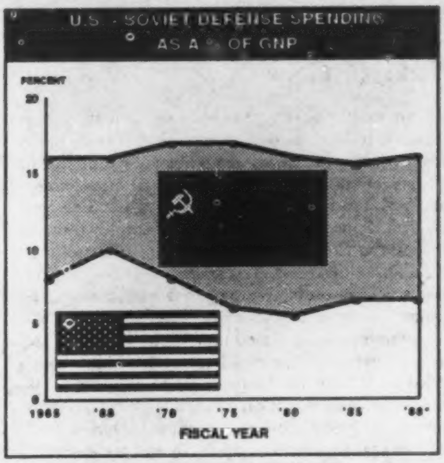
The array of challenges for which the Army must prepare has never been more complex. In an increasingly multipolar world marked by a continuing Soviet threat, increasingly lethal Third World conflicts, and widespread terrorism and insurgencies, the Army remains a key component of our Nation's military strategy. As the threats to our national interest evolve, the Army component of U.S. strategic forces must remain strong and flexible to respond to a broad range of conflicts anywhere in the world.

THE CHALLENGES TO OUR NATION ARE INCREASINGLY COMPLEX

B. Scarce Resources

The first priority of any nation must be to defend itself. Indeed, a nation that cannot defend its own sovereignty or is not willing to help its allies defend theirs, soon cedes that sovereignty to another power.

In this era of large federal budget deficits, there is a popular misconception that defense spending is too large and is the major contributor to fiscal problems. Yet by comparison with the Soviet Union, the proportion of our national wealth that we have spent for defense is modest. Our military's share of the Nation's Gross National Product (GNP) is only about a third of the comparable Soviet figure. In the last three decades, non-defense U.S. government spending has far outstripped defense spending in both growth and real dollars.

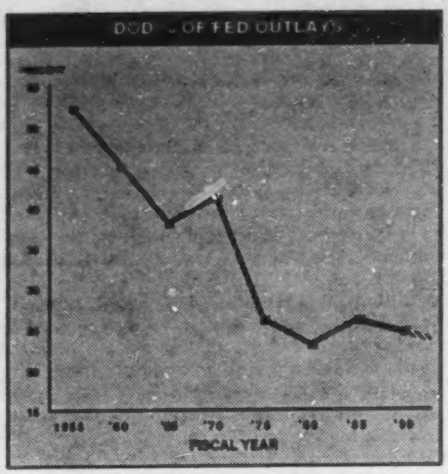


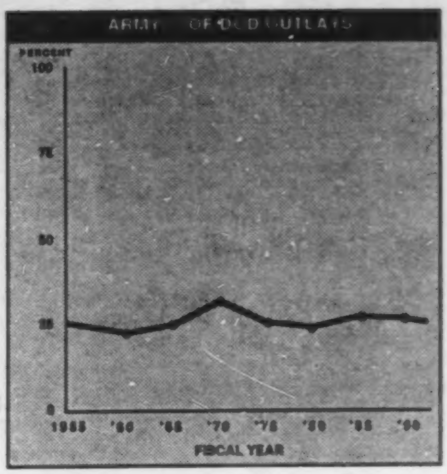
SOURCE: DOD ANNUAL REPORT TO CONGRESS FY89
* DATA FOR '88 ARE BASED ON PRELIMINARY ESTIMATES

1. NEGATIVE GROWTH FOR THE ARMY

While gross defense spending has increased over the past eight years, the Army has actually experienced negative growth after inflation for the last five years.

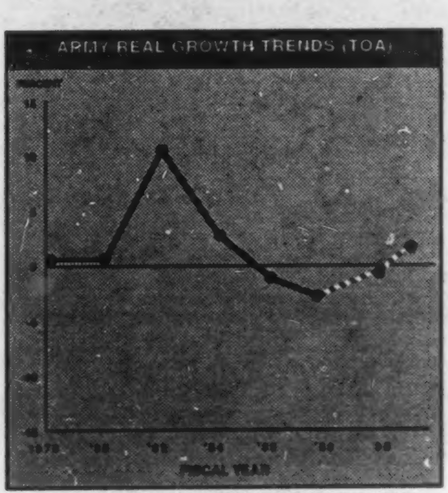
As resources continue to be scarce, our government must carefully consider the risk of further budget cuts. Deficit reduction *is* important. But the security of the Nation itself is *vital*.





SOURCE: DOD ANNUAL REPORT TO THE CONGRESS FY 90

The most immediate effect of this negative growth on the Army's appropriations is to reduce the number of planned and programmed weapons systems that can be purchased, slow the pace at which those systems can be fielded, and curtail much of the needed construction of new facilities.



SOURCE: FY 70-89 NATIONAL DEFENSE BUDGET ESTIMATES, APR 88
FY 89-90 DOD BUDGET REPORT, DEC 88

2. RISKS

The FY90/91 budget we have submitted will allow the Army to maintain most of its capability to field a trained, ready strategic force capable of protecting the vital interests of the United States. Without real growth, the Army's capability will shrink vis-a-vis the military capabilities of the Soviet Union and other threats. The result will be an increasingly dangerous deficit in the Army's overall capabilities.

☐ *Readiness will be threatened.* The visible readiness of Army forces is our greatest contribution to deterrence; it is essential for rapid transition to war, early conflict containment, and successful conflict resolution. We have maintained force readiness at the top of our priorities, but future budget cuts may necessitate reduced training levels, adversely affect our quality of life and retention efforts, and lower the responsiveness and morale of the entire Army.

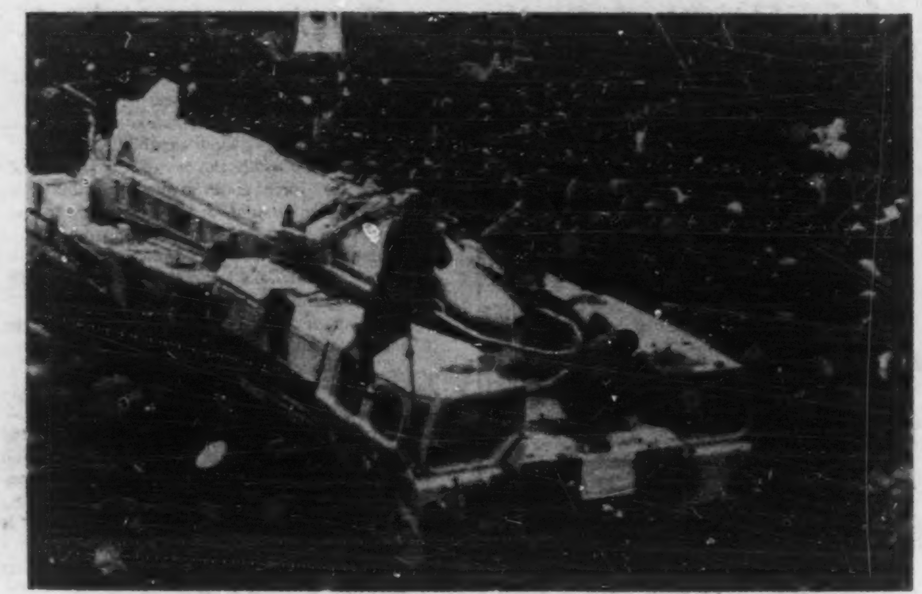
☐ ***The pace of modernization will be further slowed.*** We have traditionally depended upon our technological edge to overcome the vast quantitative advantages held by the Warsaw Pact over the United States and our NATO allies. However, Soviet Union and Warsaw Pact production and modernization continue to outpace us. The quantitative gap is growing while our qualitative edge is shrinking. The result is a more capable threat and much greater risk to our national security. The Defense Science Board predicts that for some of our most important systems the technological edge will shift to the Soviet Union in the very near future.

☐*Army sustainment will be weakened.* One unique contribution of land forces is staying power. Our mission is to raise an Army for prompt and sustained combat. We must have the capability to conduct sustained operations or our adversaries will be able to win by simply outlasting us. We had planned to organize, train, and equip sufficient Reserve Component (RC) combat support and combat service support units to meet all of the CINCs' wartime requirements. However, in the last two years, RC growth has all but stopped. Additionally, we have had to settle for far less in war reserve stocks than the CINCs require.

☐*Force structure may not be adequate to accomplish our missions.* Since 1986, funding constraints have forced us to reduce the active Army by 8,600 Active Component (AC) soldiers while drawing down our civilian work force by 12,000. Additionally, we can no longer afford the RC force structure growth previously programmed to meet new RC missions. Planned growth of 9,000 in the U.S. Army Reserve (USAR) and 28,000 in the Army National Guard (ARNG) will be eliminated by 1997. In the face of such pressures, the adequacy of the current and future Army force structure to execute national military strategy with a reasonable assurance of success is increasingly open to question. Our ability to provide the necessary range of capable, ready, and supported forces is at risk. This does not bode well for our strategy of deterrence.

Some argue that all of these concerns are irrelevant because we will still retain a strong nuclear deterrent. However, in an age of relative nuclear parity, the burden of deterrence has shifted significantly toward conventional land forces. Army Forces are essential to maintaining the U.S. deterrent, and vital to our ability to fight, control, and win conflicts which may occur. Above all, we must avoid a weakened Army that will not be able to respond swiftly with forces of sufficient quality, quantity, and staying power to provide a credible deterrent to coercion or outright aggression.

INCREASED THREAT CAPABILITIES + SCARCE RESOURCES = INCREASED RISK



A Soviet made Scud-B in Tehran, used during "the war of the cities" in the Iran-Iraq war.

III. Trained And Ready Today

A. Readiness

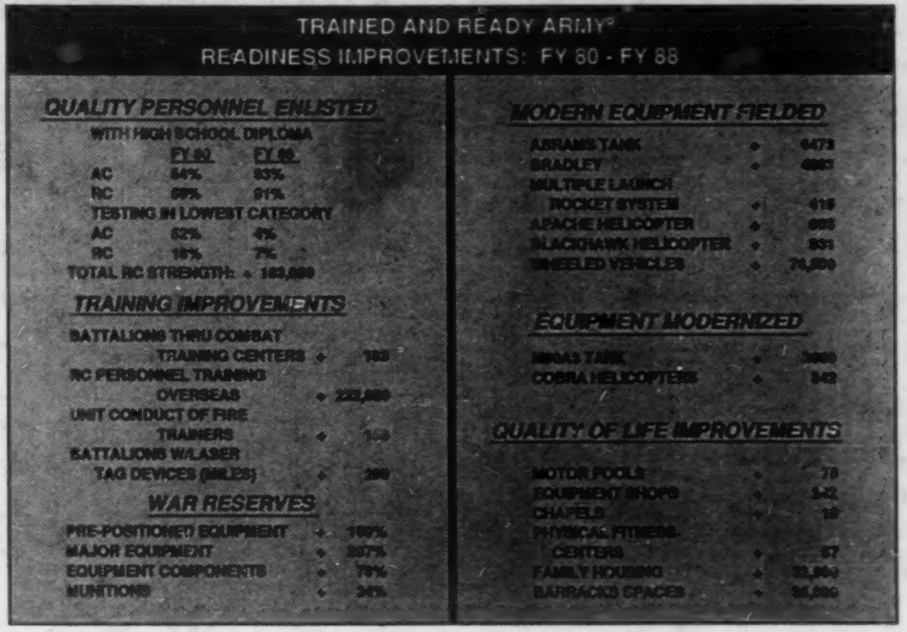
1. READINESS DEFINED

Readiness is the ability of Army units to execute their missions in peacetime or in war. It is produced by melding soldiers, leaders, doctrine, training, and equipment into capable units able to mobilize, deploy, fight, and sustain operations.

For more than 150 years U.S. military planners were assured months or even years of preparation time before entering major combat operations. As events in Grenada, Honduras, and the Persian Gulf demonstrated, today's conflicts and potential crises may offer little warning. Today, readiness is the foundation of deterrence.

One of the principal tools for measuring current readiness is the Status of Resources and Training System (SORTS). Through SORTS, all Army components regularly report unit status in the areas of personnel, equipment on hand, equipment serviceability, and training.

Readiness designations range from C-1 (fully mission capable) to C-5 (not operationally ready due to service directed changes). SORTS data show that the Total Army has made substantial improvements in readiness this decade, with an overall improvement of 19 percent in the past three years.



TRAINED AND READY ARMY°
READINESS IMPROVEMENTS: FY 80 - FY 88

QUALITY PERSONNEL ENLISTED

WITH HIGH SCHOOL DIPLOMA

	FY 80	FY 88
AC	54%	93%
RC	59%	91%

TESTING IN LOWEST CATEGORY

AC	52%	4%
RC	18%	7%

TOTAL RC STRENGTH: ◆ 183,000

TRAINING IMPROVEMENTS

BATTALIONS THRU COMBAT TRAINING CENTERS	◆	188
RC PERSONNEL TRAINING OVERSEAS	◆	222,000
UNIT CONDUCT OF FIRE TRAINERS	◆	150
BATTALIONS W/LASER TAG DEVICES (MILES)	◆	290

WAR RESERVES

PRE-POSITIONED EQUIPMENT	◆	100%
MAJOR EQUIPMENT	◆	207%
EQUIPMENT COMPONENTS	◆	78%
MUNITIONS	◆	24%

MODERN EQUIPMENT FIELDED

ABRAMS TANK	◆	6473
BRADLEY	◆	4863
MULTIPLE LAUNCH ROCKET SYSTEM	◆	416
APACHE HELICOPTER	◆	665
BLACKHAWK HELICOPTER	◆	831
WHEELED VEHICLES	◆	76,000

EQUIPMENT MODERNIZED

M60A3 TANK	◆	3000
COBRA HELICOPTERS	◆	342

QUALITY OF LIFE IMPROVEMENTS

MOTOR POOLS	◆	78
EQUIPMENT SHOPS	◆	142
CHAPELS	◆	18
PHYSICAL FITNESS CENTERS	◆	57
FAMILY HOUSING	◆	22,000
BARRACKS SPACES	◆	36,000

2. TRAINING

The best short term contributor to readiness is tough, realistic training. Between October 1985 and October 1988, the Army realized a steady improvement in the number of units reporting operationally ready for training. This improvement in training readiness at a time of unprecedented modernization and reorganization reflects the incorporation of new training facilities and techniques, as well as the dedication of skilled and innovative leaders at every level.

3. PERSONNEL

Continued command involvement at all levels of personnel management has helped to minimize the effect of directed manpower reductions and budget cuts. The percentage of units reporting C-3 or better for personnel improved by 11 percent between 1985 and 1988.

4. EQUIPMENT

The Army has also made significant improvements in equipping its units, both in the Active Component (AC) and Reserve Components (RC). Our equipping strategy and cross-leveling efforts have made combat units the biggest beneficiaries of the policy that "first to fight is first to be equipped." Between 1985 and 1988, units reporting operationally ready increased by 24 percent in the AC, 32 percent in the USAR, and 36 percent in the ARNG. These positive trends were complemented by the fielding of numerous modern systems. As a result, our units today are both more ready and more capable.

5. TODAY'S ARMY IS TRAINED AND READY

The high state of Army readiness today is a direct result of investments in quality people, realistic training, and continuous and intensive efforts to modernize and to improve sustainment. But maintaining this high state of readiness requires a commitment by the civilian and military leadership and the requisite funding. The impact of recent budget cuts is already being felt, and continued deep cuts will ultimately impair our readiness.

WE HAVE THE BEST TRAINED, HIGHEST QUALITY ARMY IN OUR HISTORY

B. Doctrine

Doctrine is an accepted set of principles which describe the nature, theory, and practice of war. It is developed by identifying principles and adapting them to the realities of the contemporary world and the threats which Army forces face. It tells us what we must do in order to win. Thus, doctrine drives our training and education programs, as well as organizational designs, force modernization, and materiel acquisition programs.

1. AIRLAND BATTLE DOCTRINE

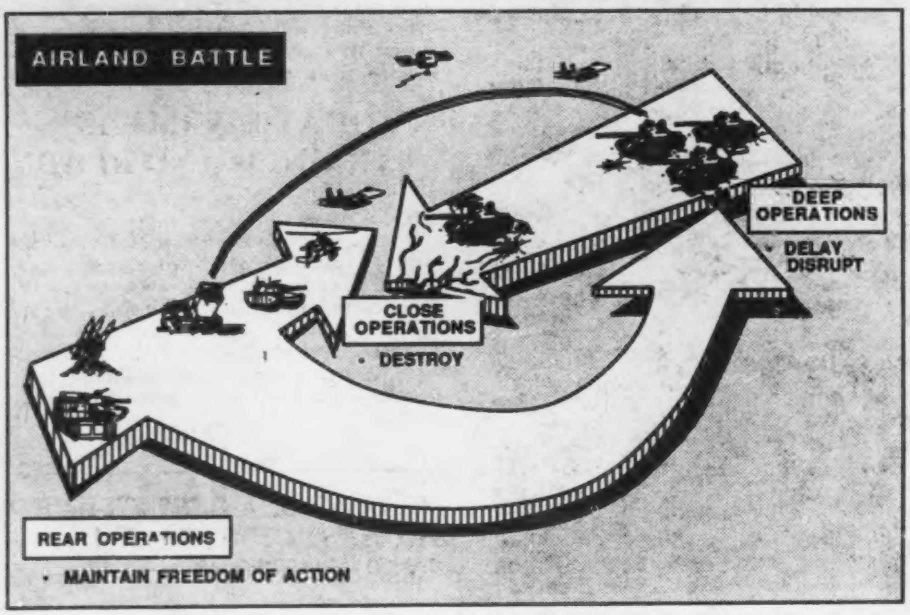
AirLand Battle is the basic doctrine that guides the U.S. Army's approach to warfighting. Its very name reflects the three dimensional nature of modern warfare and the need to integrate the air and ground aspects of combat to obtain the best use of all available combat power. The fundamental imperative of AirLand Battle is to secure the initiative and exercise it aggressively. While AirLand Battle doctrine focuses primarily on mid- to high-intensity warfare, the tenets of the doctrine – initiative, agility, depth, and synchronization – apply in all theaters and to military operations characteristic of low intensity conflict.

In AirLand Battle, the three areas of combat (close, deep, and rear) are fought as interrelated parts of one battle.

☐*Close Operations* comprise the activities of committed combat elements that bear the ultimate burden of victory. These activities include maneuver, close combat, indirect fire support, and command and control.

☐*Deep Operations* are directed against enemy forces not in direct contact so as to ensure the success of future close operations. Many of our most important programs are designed to keep the Soviets from bringing to bear their primary advantage of mass, using the enduring U.S. strength in technology to exploit traditional Soviet weaknesses in command and control. Typical activities are deception, deep surveillance, deep fires, deep maneuver, electronic countermeasures, and command and control.

☐*Rear Operations* are those activities conducted behind the elements in contact with enemy main forces and are designed to ensure continuity of friendly operations. Rear operations include assembly and movement of reserves, redeployment of fire support, maintenance and sustainment, security operations against threats in the rear, and command and control.



To win, we must defeat the enemy in close operations, facilitate current and future close operations through deep operations, and maintain our own freedom of action and continuity of operations in the rear area.

AirLand Battle doctrine provides guidelines, not rigid procedures. It may be adapted as necessary to conform to U.S. and alliance policies and strategy, and the nature of the specific regions and battlefields to which Army forces are committed. However, it requires soldiers and leaders who understand its tenets and are tactically and technically competent. The full potential of Army forces operating according to AirLand Battle doctrine is achieved only with modern equipment and well trained, motivated high quality soldiers and leaders.

2. JOINT DOCTRINE

In order to ensure the best integration of all services' combat capabilities, the Army continues to pursue the development of joint doctrine. As a result, more progress has been made in joint doctrine in the past three years than in the previous three decades. The Joint Doctrine Master Plan, which provides guidance and direction for the development of all joint doctrinal publications, was approved by the Director of the Joint Staff in February 1988. The program was accepted by all four services and published as *Joint Chiefs of Staff Publication 1-01, Joint Doctrine and Joint Tactics, Techniques, and Procedures Development Program.*

As the proponent, the Army will write the capstone operations manual scheduled for release to the services and to all the CINCs for review in FY89.

Thirty-five joint publications are under development and 26 existing JCS publications are being incorporated into the process. The end product is a growing body of common doctrinal language, rules, and procedures that will allow all of the Nation's military services to operate together in the field, and ultimately cooperate in the fielding, training, modernization, and sustainment of joint forces.

An Army Apache attack helicopter conducts joint operations from an aircraft carrier.

3. COMBINED OPERATIONS

Effective interoperability among alliance partners is one of the keystones of our strategy of deterrence, especially in Europe. Should deterrence fail, improved battlefield interoperability is one of the most cost effective ways of improving our warfighting capability. This requires a broad acceptance and application of doctrines, tactics, techniques, and procedures between allies. Concerted efforts in this area are paying dividends as we steadily improve our ability to share ammunition, communications, petroleum products, wholesale logistical support, and medical facilities. An example of this improvement is the pending adoption of JP-8 by NATO as the standard battlefield fuel.

Our military strategy requires an Army trained for combined operations with allies around the world.

4. COMPETITIVE STRATEGIES

One way the Army seeks to counter Soviet quantitative superiority in land forces, and to improve deterrence, is through Competitive Strategies. This approach identifies opportunities for achieving warfighting leverage by capitalizing on enduring U.S. strengths to exploit enduring Soviet vulnerabilities. Competitive Strategies are not new to Army planning. Army leaders are taught to understand the enemy and the battlefield, assess the strengths and vulnerabilities of both sides, anticipate enemy responses, plan counterresponses, and force the enemy to react to our initiatives. AirLand Battle, the Army's basic warfighting doctrine, was developed on this basis and is itself a competitive strategy.

The Army has several on-going initiatives to implement Competitive Strategies. Major investments have been made in armor/antiarmor and deep operations systems, as well as those which will contribute to enhanced force agility, such as the Palletized Loading System and Mobile Subscriber Equipment. Our ability to fight at night through enhanced training and modern equipment is continuing to receive emphasis.

The existence of these programs, developed in support of AirLand Battle doctrine, reflects the close relationship between the Army's doctrine and Competitive Strategies.

5. LOW INTENSITY CONFLICT (LIC)

LIC is political-military confrontation between states or groups at a level below conventional war but above the routine peaceful competition among states. It involves the protracted struggle of competing principles and ideologies, and its manifestations range from subversion to the use of organized armed forces.

The military plays primarily a supporting role in such situations, securing objectives which are fundamentally political, psychological, or economic in character. The nonmilitary nature of LIC operations is so important that it drives the tactical conduct of military operations, even when combat forces are employed.

These conflicts occur most frequently in developing nations and can carry regional and global security implications. The principal threat to U.S. interests posed by low-intensity conflict is not found in individual cases of insurgency, economic instability, or isolated acts of terrorism and subversion. Rather, it results from the accumulation of unfavorable outcomes from such activities which can gradually isolate the United States, its allies, and its trading partners from each other.

A Soviet tank viewed through a U.S. night vision sight.

Essential to U.S. success in LIC is the employment of a combination of economic, political, informational, and military instruments tailored to the specific situation. A new document nearing completion (*FM 100-20/AFM 2-XY*), will establish joint Army and Air Force doctrine for planning, coordinating, and executing joint LIC operations. It will complement the existing AirLand Battle doctrine, providing guidance to Army and Air Force commanders and staffs charged with LIC-related duties.

6. SPECIAL OPERATIONS DOCTRINE

Special operations include the range of activities performed by Special Forces, Ranger, Special Operations Aviation units, Civil Affairs, and Psychological Operations. Special operations are integral to the operations of Army and joint forces across the spectrum of conflict. Special Operations Forces (SOF) are assigned to CINCs for the execution of their wartime and contingency plans. SOF may also be assigned missions to support U.S. country teams around the world as well as sensitive missions authorized by the National Command Authorities.

Army and joint SOF doctrine continues to be developed for high-, mid-, and low-intensity conflict.

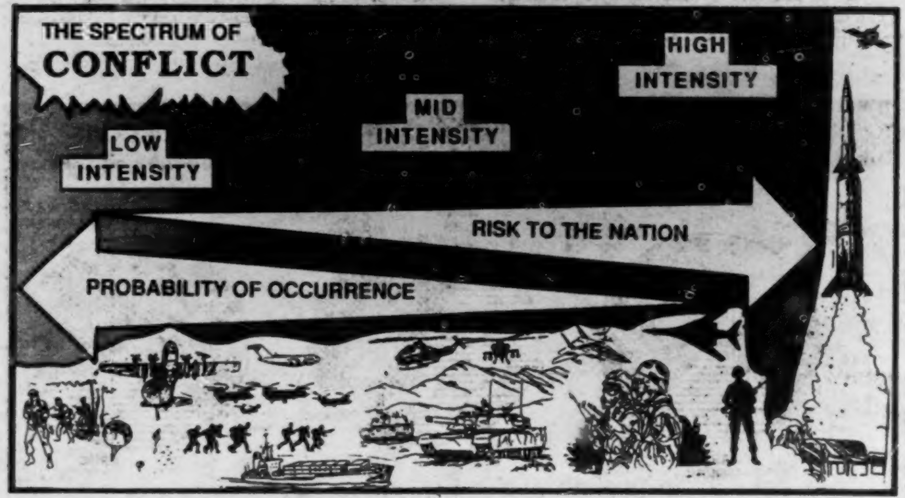
7. FORCE PROTECTION DOCTRINE

As terrorists acquire more destructive weapons and their goals become more radical and varied, the Army remains a visible target for terrorist attack. To better protect our soldiers, civilian employees, family members, facilities, and assets from terrorists and other criminal threats, the Army is implementing a new, umbrella Force Protection doctrine. This approach integrates terrorism counteraction, law enforcement, operations security, physical security, personal protective services, and crime prevention programs with intelligence, counterintelligence, and other security programs. The first step, the consolidation of all security and law enforcement functions within Headquarters Department of the Army (HQDA) under the Deputy Chief of Staff for Operations and Plans, has already been completed.

Force protection doctrine influences how we spend more than $100 million annually for security programs. Current approaches include new improved barriers, gates, and access control systems; closed circuit and low-light surveillance cameras, sensors and other detection and assessment devices; secure communications; and new intelligence and security management information systems. Additionally, nine specialized force protection courses are being conducted at TRADOC schools. Special Reaction Teams have been organized, equipped, and trained to respond rapidly to incidents on Army installations. One of the most innovative actions is the development of an integrated, deployable, modular force protection package consisting of sensors, cameras, and other security equipment to protect soldiers deploying overseas on exercises and joint and combined operations.

No potential target can ever be made absolutely secure. However, efforts to train and protect the Army while discouraging attackers are paying off. While terrorist attacks worldwide continue to increase, attacks against the Army are declining and casualties and damages have been reduced significantly in the last three years.

ARMY MISSIONS AND DOCTRINE REQUIRE AN ADEQUATE, TAILORED FORCE STRUCTURE



While the likelihood of U.S. involvement in a high intensity conflict is low, such a war would pose a high risk to the nation.
Low intensity conflicts pose a smaller risk, but are much more likely to occur.
Our Army must be prepared to fight and win across this entire spectrum of conflict.

C. Force Structure

Force structure refers to the fighting and support units and the sustaining base which make up the Total Army. The design of those forces, together with their training and equipment, is carefully tailored within manpower and fiscal constraints to optimize our warfighting capabilities in accordance with Army doctrine. Additionally, those forces must be structured to defeat the wide variety of threats our Nation faces across the spectrum of conflict.

Meeting our Nation's worldwide commitments requires:

☐a combination of U.S. based and forward deployed forces;

☐an appropriate mix of AC and RC with a skilled civilian work force;

☐a proper ratio of combat, combat support, and combat service support units; and

☐a combination of heavy, light, and SOF organizations.

1. THE TOTAL ARMY

Today's Total Army contains 28 combat divisions and 22 combat brigades.

The AC provides forward deployed, contingency, and rapid reinforcement forces for immediate use. However, our authorized active duty personnel strength is perilously small – the smallest since 1950. The civilian work force provides overseas and CONUS based support to sustain the deployed and deployable military forces.

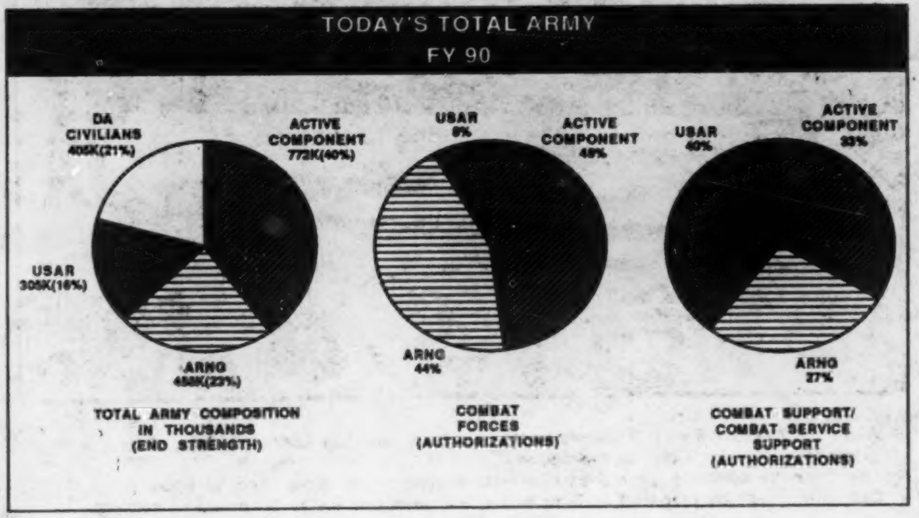
Currently, RC forces comprise more than one half of the soldiers in our Total Army. Ten of our divisions are provided by the ARNG, and one-third of our 18 Active divisions include RC "roundout" brigades. Sixty percent of the support units required by our mobilized force are in the RC. In fact, we are close to the limit of requirements which we may safely place on RC units.

The RC also contain most of the trained individual manpower in the total force structure. To ensure that these forces are rapidly available to support the CINCs, Army mobilization efforts have focused on planning, training, and low-cost force structure initiatives to include:

☐*Implementing the Army Mobilization and Operations Planning System* to standardize and integrate mobilization activities at the Army Staff and MACOM level;

☐*Providing mobilization training to all levels of the RC, as well as to installations and MACOM personnel through JCS-directed exercises;*

☐*Establishing eight CONUS Replacement Centers* to process individual fillers and replacements for deployment, a modest initiative that will allow the Army to process and deploy more than 100,000 soldiers during the first 30 days of mobilization.



2. HEAVY FORCES

Our heavy forces are designed primarily to fight and win against a mechanized enemy on a mid- to high-intensity battlefield.

The standard Army design for an armored division now contains approximately 16,800 soldiers (6 tank and 4 mechanized infantry battalions); a mechanized infantry division has about 17,100 soldiers (5 tank and 5 mechanized infantry battalions). Heavy division improvements implemented in this decade include:

☐Fielding of the Bradley Fighting Vehicle, Abrams tank, and Apache attack helicopter with new firepower, protection, and mobility;

☐Redesign of the division support command to provide quicker repair and resupply through a forward support battalion in each brigade and a main support battalion in the division rear area; and

☐Modernization of division artillery to include three 155mm self-propelled howitzer battalions, a Multiple Launch Rocket System (MLRS) battery, and a target acquisition battery, as well as fielding of MLRS battalions and replacement of howitzers with MLRS in some corps artillery units.

RC units are also converting to these new, more powerful designs at about the same time as their associated AC units.

3. LIGHT FORCES

The Army developed the light infantry division design to complete the long delayed light infantry modernization and to provide greater flexibility in supporting our national military strategy by rapidly reinforcing distant commands or projecting forces into areas where allies or U.S. interests require quick support. These divisions are designed for rapid deployment, and are especially effective in urban areas and restrictive terrain.

The Army now has five light infantry divisions consisting of approximately 10,800 soldiers each (nine light infantry battalions, three 105mm towed howitzer battalions, and one 155mm towed howitzer battery). Two AC light infantry divisions have roundout brigades from the RC to complete the divisional structure. One light infantry division is in the RC.

Selected units of the specialized air assault and airborne divisions have completed their conversion to a modern lighter design, modified to accommodate unique mission requirements and the need for specialized training. Force design changes give them increased tactical mobility, improved reconnaissance capabilities, a broader range of communications assets, and organic nuclear, biological, chemical decontamination capabilities, with smoke support. As a result, the Army can deploy a formidable combat force within a matter of hours to any trouble spot in the world.

Agility: A basic tenet of AirLand Battle. Here light forces train in Panama.

U.S. soldiers based in Hawaii train for LIC with our Australian allies.

4. SPECIAL OPERATIONS FORCES (SOF)

The improvement of Army Special Operations Forces has been a major priority and a major success story this decade. Since 1981, with the help of Congress and the support of the Administration, the AC has added more than 5,000 SOF soldiers; RC SOF strength exceeds 14,500. We have formed an additional Ranger battalion, a third PSYOPS battalion, and one new Special Forces group, with another group programmed for activation next year. We have fielded more than 140 special operations helicopters in seven Special Operations Aviation units, and successfully employed those aircraft in the Persian Gulf and in other contingencies. Our agreements with the Air Force and our close coordination with USSOCOM and the Assistant Secretary for Defense for Special Operations/LIC will ensure that our capabilities are effectively and efficiently employed in the years ahead.

☐*Special Forces* are designed to conduct and to train foreign military and paramilitary forces in unconventional warfare, foreign internal defense, direct action, special reconnaissance, counterterrorism, and humanitarian assistance. Currently, there are four Special Forces Groups in the AC, two in the USAR and two in the ARNG.

☐*Rangers* are highly skilled light infantry employed primarily in unique direct action operations in support of conventional operations or deep within an unfriendly area in support of national objectives. Approximately 1,800 soldiers are assigned to Ranger units within the 75th Ranger Regiment.

☐*Army Special Operations Aviation* units are designed, trained, and equipped to support SOF throughout the spectrum of conflict with attack and lift helicopters. Equipped with specially modified aircraft, these highly trained crews provide a unique capability to perform high priority missions at night and in poor weather.

☐*Civil Affairs* forces assist commanders in coordinating host nation support and population control, training foreign internal defense forces during peacetime, and providing technical civil assistance to local governments. Most CA groups are in the USAR, with only one group in the active force. More than 4,800 soldiers in 36 CA units are stationed in 22 states.

☐CA units may be paired with *Psychological Operations* (PSYOP) forces in combat to influence both friendly and enemy personnel in accordance with the commander's objectives. The Total Army includes one AC PSYOP group of approximately 970 soldiers, while three RC groups are in the USAR stationed in 19 states.

The Army's budget for SOF has continued to expand despite overall budget constraints for FY 90/91. This funding increase reflects the challenges to our Nation's security, and allows SOF structure expansion even in the face of AC strength reductions.

D. Training and Leader Development

Training is the cornerstone of the combat readiness the Army must maintain to succeed as a strategic force. Good training melds soldiers, doctrine, and equipment into combat ready units. It enhances deterrence by showing both friends and enemies that we are ready to fulfill our responsibilities as a major power. It meets our obligation to our soldiers by ensuring that they are fully prepared before we send them into combat. It teaches the various parts of our Nation's defense establishment -- active, reserve, civilian members and sister services -- to work together with maximum efficiency. And it lays the foundation for a ready Army in the future. The standards for tomorrow's Army will be set by the leaders we train today.

Army training must be tough and demanding, replicating as closely as possible the stressful conditions of the battlefield. History shows a direct correlation between training in peace and victory in war. We must train as we will fight.

1. UNIT TRAINING

COMBAT TRAINING CENTERS

Our Combat Training Centers (CTC) provide unit commanders and their soldiers with tough, realistic combined arms and joint services training in accordance with AirLand Battle doctrine. Training at our CTCs is the best anywhere in the free world. CTCs include three instrumented tactical field sites and a wargaming program designed to train participants for combat across the spectrum of conflict.

The National Training Center (NTC) at Fort Irwin, California, is the Army's premier stateside facility for training armored and mechanized infantry units. In FY90/91, the NTC will train a total of 66 combat maneuver battalion task forces. Both AC and RC units deploy to the center, draw prepositioned equipment, and spend two weeks conducting live fire and maneuver training against a force equipped and trained to replicate a Soviet motorized rifle regiment. Battlefield realism is attained through tactical engagement simulation devices, instrumentation for real time feedback, and integration of U.S. Air Force close air support.

The Joint Readiness Training Center (JRTC) is headquartered at Little Rock Air Force Base, Arkansas with field training conducted at nearby Fort Chaffee. It offers realistic combat training for the Army's lighter forces using many of the same techniques and technologies in place at the NTC. Units are deployed from homestation into unfamiliar terrain for a 10-day training exercise in low- to mid-intensity combat scenarios. Nine battalions will be trained in FY90, increasing to 12 battalions in FY91.

The Combat Maneuver Training Center (CMTC) at Hohenfels Training Center, Germany is the newest of the CTCs and will provide the same force-on-force training opportunities for USAREUR heavy battalions that CONUS-based units experience at NTC. The CMTC will begin limited operations in FY89 and become fully operational in FY91. CMTC will train 52 battalion task forces annually.

Battle Command Training Program (BCTP) is the capstone of the Army unit training program. It offers division and corps commanders and their battle staffs intensive training in wartime duties. BCTP begins with a 5-day seminar covering current doctrine, threat updates, and decision exercises, followed by a realistic command post exercise based on the unit's wartime mission. Simulation support for the BCTP is provided by the National Simulation Center at Fort Leavenworth, Kansas, or unit simulation centers at five corps. Eleven additional sites are scheduled to receive the brigade/battalion simulation system in FY89. Beginning in FY90, the BCTP will be able to train 16 divisions each year.

A Soviet tank unit on the march in the USSR.

U.S. "Opposing Forces" on the march at the NTC.

ARMY EXERCISE PROGRAM

The Army Exercise Program includes joint, combined, and unilateral exercises. Major joint and combined exercises may be scheduled by either the JCS or unified commands and are centrally sponsored and coordinated through the JCS Exercise Program. Unilateral Army exercises are conducted at corps level or below.

The Army participates in approximately 50 JCS exercises each year with Army incremental support costs of approximately $90 million. Troops and equipment are deployed and exercised in such varied environments as Europe, Korea, Southwest Asia, Africa, the Pacific, and Central America. Every major JCS exercise includes significant RC participation. Some of the more significant exercises are:

A U.S. camp in Australia: part of the Army Exercise Program.

☐*REFORGER.* Conducted annually, this largest CONUS based deployment exercise demonstrates rapid reinforcement of NATO and U.S. warfighting capabilities, improves NATO interoperability, and exercises general defense plans. REFORGER 88 deployed 16,771 troops to include short notice deployment of a light infantry battalion task force from the 10th Mountain Division (Light Infantry). USAREUR is developing an initiative for REFORGER 89/90 that will increase the involvement of key leaders, train staffs, and integrate the use of simulations.

☐*TEAM SPIRIT* is the Free World's largest exercise with more than 200,000 participants. It improves the combat readiness of the Republic of Korea and U.S. forces through joint and combined training that includes global and tactical deployments and the reception of U.S. based reinforcements. U.S. players include brigade size forces from I Corps in Korea, 25th Infantry Division (Light) in Hawaii, and a number of RC combat service support units from CONUS.

☐*BRIGHT STAR*, a large scale, biennial exercise, deploys CONUS-based forces to various countries in Central Command's Southwest Asia area of responsibility. Emphasis is on rapid deployment, mobility, and combat readiness. More than 5,400 soldiers participated in BRIGHT STAR 87.

☐*FUERTES CAMINOS* and *AHUAS TARA* deploy CONUS-based forces to Central America under the sponsorship of the U.S. Southern Command. Involving mostly RC forces, these joint exercises demonstrate U.S. commitment to the region with emphasis on engineer training.

☐*MOBEX*, an annual mobilization exercise, puts large numbers of RC units and individual soldiers through the first steps of wartime activation. In conjunction with the FY88 MOBEX, First U.S. Army conducted its own internal mobilization exercise in which a record 164 Army Reserve units participated. Other CONUS commands anticipate conducting this type of extensive mobilization training during future mobilization exercises.

TRAINING IS THE CORNERSTONE OF READINESS

SINCE 1981 THE ARMY HAS ESTABLISHED A "THEME" EACH YEAR IN ORDER TO FOCUS ATTENTION AND EFFORT ON A SINGLE ISSUE CRITICAL TO THE SUCCESS OF THE TOTAL ARMY.

1988 - THE YEAR OF TRAINING

TRAINING WAS SELECTED AS THE 1988 ARMY THEME TO REFLECT THE ARMY'S EMPHASIS ON THE WARFIGHTING SKILLS ESSENTIAL TO ACCOMPLISHING ITS MISSION. OUR ARMY EXISTS TO KEEP THE PEACE AND, SHOULD WAR OCCUR, TO DEFEAT THE ENEMY. THIS REQUIRES AN ARMY TRAINED TO MOBILIZE, DEPLOY, FIGHT, AND WIN ANYWHERE IN THE WORLD.

1989 - THE YEAR OF THE NCO

ARMY NCOs PLAY AN INDISPENSABLE ROLE IN THE WARFIGHTING READINESS OF OUR FORCE. THEY PROVIDE THE DAY-TO-DAY LEADERSHIP WHICH KEEPS OUR FORCE TRAINED AND READY. WE FOCUS ON THEIR UNIQUE CONTRIBUTIONS -PAST, PRESENT, AND FUTURE - IN DECLARING THIS SPECIAL ARMY STRENGTH THE 1989 THEME.

2. LEADER TRAINING

As the threats to our security and our forces have grown increasingly complex and sophisticated, leader education and training have become more demanding for officers, noncommissioned officers, and civilian supervisors at every echelon. The three pillars of leader development are military schooling, operational assignment, and self-development. These experiences reinforce each other to produce tactically and technically proficient leaders. Leader development pays off in readiness today and shapes a sound Army for tomorrow.

NONCOMMISSIONED OFFICER EDUCATION SYSTEM (NCOES)

Continued refinement of an NCOES program that ensures NCOs are trained to uniformly high standards is the goal for FY90/91. Increased military occupational specialty (MOS) proficiency, physical fitness, military bearing, and commitment to professional values are our objectives as we continue to improve this training program. NCOES includes:

☐The *Primary Leadership Development Course* provides prospective NCOs with the skills required to teach and lead individual soldiers. The course of instruction contains nine days of field training where the students apply their newly acquired leadership skills in a combat environment.

☐The *Basic Noncommissioned Officers Course (BNCOC)* provides leadership and MOS skill training to prepare squad and section leaders (sergeants and staff sergeants) to execute their primary peacetime and wartime roles as small unit leaders. Recent BNCOC enhancements include increasing the amount of "performance oriented" training and including additional MOSs.

☐The *Advanced Noncommissioned Officers Course* provides extensive leadership training to senior staff sergeants and sergeants first class. Included within the common core of leadership training will be an increased focus on job-related technical training to prepare students for platoon level leadership positions.

☐*Functional Courses* (which complement the formal NCOES system) prepare selected NCOs for specific duties in both peacetime and in combat operations. Three important examples are the Operations and Intelligence Course, the Personnel and Logistics Course, and the First Sergeant Course. All are taught at Fort

Army NCOs keep our soldiers trained and ready

Bliss, Texas. U.S. Army, Europe also provides the First Sergeant course to newly selected first sergeants stationed in Europe.

☐The *Sergeants Major Course* is the capstone NCOES course. Conducted at the Sergeants Major Academy at Fort Bliss, Texas, it prepares selected senior-level NCOs for management and leadership positions of great responsibility throughout the Total Army.

OFFICER EDUCATION SYSTEM

Our system of officer education and training is designed to ensure that Army officers develop the attitudes and acquire the knowledge and skills required of the profession of arms. We aim to develop competent, confident officer leaders who are able to exploit the full warfighting potential of the Army's forces operating in unified action with other services and allies. Our officer education and training system is comprehensive in that it encompasses all levels, it addresses the needs of both AC and RC officers, and it deals with issues across the spectrum of conflict.

As with our NCOs, officer leader development is based on three pillars: formal education, augmented by self-development and operational experience. Education and training within the Army is progressive. Experience at one level builds upon and reinforces the knowledge and skills acquired at previous levels. Our formal institutions reflect a similar pattern of sequential education and training as we attempt to match knowledge and skills with an officer's duties and responsibilities.

As officers advance in senority so does the emphasis we place on joint professional education. Beginning this year, both the Command and General Staff College and the Army War College will incorporate the initial phase of the joint education curricula required as partial qualification for nomination as a joint specialist officer.

☐The *Military Qualification Standard (MQS) Program* standardizes AC and RC precommissioning and company-grade officer training by establishing common tasks that junior officers must know to accomplish assigned missions. MQS integrates training and education efforts of the officer, the commander, and the Army school system.

☐*Functional Officer Advanced Courses* prepare captains to lead, train, maintain, and fight their units. Common core and branch specific instruction is included in the 20-week course, followed by up to six weeks of specialty training keyed to the officer's next assignment.

☐The *Combined Arms and Services Staff School (CAS3)* is a demanding 9-week course that trains captains to function as staff officers with the Army in the field. It emphasizes problem analysis, solution development, and staff coordination through an intensive, concentrated course of study. Captains attend on a temporary duty basis during their 6th to 9th year of service. Projected annual enrollment is over 4,100 students. An RC CAS3 is being tested to extend this valuable instruction throughout the Total Army.

The AMSP produces operational planners of exceptional competence.

☐*The Command and General Staff Officer Course (CGSOC)* is the flagship course of the officer education system. As the last formal schooling for most Army officers, CGSOC provides the skills and knowledge required for service as general staff officers and field grade commanders. Over 1,000 officers attend the resident course and approximately 17,600 participate in the correspondence program and RC schools annually.

☐The *Advanced Military Studies Program (AMSP)* provides 46 selected CGSOC officers with an in-depth education in the art and science of war at the tactical and operational levels through a follow-on year of study. AMSP graduates proceed directly to an internship on a division or corps staff, thus seeding the force with operational planners of exceptional competence.

☐The *Army War College* prepares officers for senior leadership positions in the Army, Defense, and related Departments and Agencies through professional military study in national security affairs, with emphasis on the development and employment of ground forces. Course content is centered on analyzing the development of national security policy and the role of the military, with emphasis on the formulation of national military strategy. Recent curriculum revisions have placed additional emphasis on the formulation and execution of joint and combined campaign plans for military operations throughout the spectrum of conflict. This material complements but does not replace instruction on planning for mobilization, deployment of forces, and employment of those forces in conducting war at the operational level.

A thorough assessment conducted last year refined and validated the role of the Army War College in our national military education system, as well as the adequacy of the program and facilities.

CIVILIAN EDUCATION SYSTEM

The Army Civilian Training, Education and Development System (ACTEDS) provides the Army's professional civilian staff with standardized technical, managerial, and leadership training, coupled with follow-on growth assignments from intern through Senior Executive Service levels. ACTEDS is being implemented in 24 career programs covering some 98,000 professional civilians in the Army's sustaining base.

The ACTEDS prototype, the Logistics and Acquisition Management Program (LOGAMP) has been operating very successfully since 1984. It provides for professional development of senior career employees for executive multi-track positions in the logistics and acquisition career fields. In recognition of its long term importance, LOGAMP has been assigned a high priority for resources in FY90/91.

IET graduated 120,000 soldiers in FY88.

3. SOLDIER TRAINING

INITIAL ENTRY TRAINING (IET)

Army Training Center operations are being revised to accommodate future trends in new soldier training. First, the efficiency of the training base will be improved by minimizing the number of Basic Combat Training (BCT) graduates who must make costly moves to receive Advanced Individual Training locations. Seventeen BCT/One Station Unit Training (OSUT) companies and six battalion headquarters will be removed from the training base structure during FY89/90 to facilitate these changes. A second change to IET is the implementation of the Army's Initial Entry Action Plan which calls for the greater use of drill sergeants as primary instructors.

SPECIALIZED INDIVIDUAL TRAINING

The Army continues to place importance on selecting and training soldiers in critical additional skill courses such as *Ranger* (over 3,500 per year) and *Airborne* (over 24,000 per year). This training develops motivated soldiers and proven, self-confident leaders.

The *Foreign Area Officer (FAO)* Program annually produces approximately 140 specially trained officers for key political-military positions requiring a combination of professional military experience, in-

Ranger students with an instructor in Florida.

depth regional expertise, and proficiency in a foreign language. More than 60 percent of FAO positions (major through colonel) are located on joint, combined, or DOD staffs. These officers -- products of a 3- to 5-year training program that includes language training, graduate school, and a 12 to 24 month training assignment in the officer's region of concentration -- contribute directly to the success of important U.S. political-military initiatives throughout the world. For example, to date 20 FAOs have served with INF on-site inspection teams in the Soviet Union.

The high quality of our soldiers and of our individual training in units has been repeatedly demonstrated in international military competition over the past several years. In 1987 and 1988, soldiers from reconnaissance units of the 11th Armored Cavalry Regiment and 1st Armored Division respectively captured first place in the prestigious NATO *Boeselager Cup* competition. In the most recent NATO tank gunnery competition, a platoon of soldiers from the 3rd Armored Division achieved the highest overall tank gunnery score among six competing countries.

ARMY PHYSICAL FITNESS PROGRAM

Physical fitness is essential to combat readiness. The ability to meet mission requirements begins with the physical fitness of soldiers, their NCOs, and the officers who lead them. Carrying through on the Army Theme of 1982, we have developed a comprehensive Physical Fitness program which has increased the general fitness level throughout the Army. Since higher standards were established in October 1986, physical fitness test scores have displayed a positive upward trend. All soldiers, regardless of age, are involved in physical fitness training and are required to meet specific performance standards.

More than 6,000 graduates of the Master Fitness Trainer Course now assist unit commanders in developing individual and unit programs to meet the challenges of mission essential tasks.

Army initiatives extend beyond individual and unit training to include nutrition and cardiovascular screening. Exercise, diet, and life style are all considered in our ongoing efforts to maximize our combat readiness.

4. OPERATING TEMPO (OPTEMPO)

The amount and intensity of training that a unit can conduct is largely determined by the funds available for repair parts, fuel products, supplies, and other necessary support items. Thus, the expenditure of training funds can be controlled by designating the average operating miles or hours for major equipment systems. This allocation is called the unit's OPTEMPO.

In order to maintain all AC units at a high combat ready level, Army wide ground OPTEMPO must be funded at between 800 to 850 miles per year. To balance OPTEMPO with other Army programs, the FY90/91 budget provides for AC ground units to be funded at 800 miles.

RC ground OPTEMPO is budgeted at the level necessary to maintain adequate readiness. Higher priority units are expected to achieve C2 readiness levels. Lower priority units may maintain C3 levels. This OPTEMPO level is consistent with previous years and in balance with the AC ground OPTEMPO program. As the level of equipment and the level of effort increases, additional resources may be required.

Air OPTEMPO expresses the number of hours flown per month by helicopter crews assigned to the combat units of MACOMs, the ARNG, and USAR. On an average, the AC requires 15 hours per month to meet minimum training and mission support requirements, the ARNG requires 8.9 hours per month, the USAR requires 8.3 hours per month. In FY90/91, both AC and RC aviation units will have adequate resources to meet minimum training and mission requirements and maintain specified combat readiness levels.

5. TRAINING SUPPORT

TRAINING DEVICES AND SIMULATORS

The Army is fielding a number of state-of-the-art devices and simulators to enhance training and minimize the impact of training constraints such as time, funding, land, safety, and environmental concerns. Laser technology, for example, permits the fielding of precision laser gunnery training systems for tanks and Bradley Fighting Vehicles that allow crews and units to sustain gunnery and command and control skills in local training areas without expending live ammunition. Additionally, Simulation Networking technology allows some unit maneuver and gunnery training to be conducted in realistic simulators. By using these simulators before exercises, units can begin their critical, but expensive, field training at a much higher level of proficiency.

Another example of training support improvements is the Simulated Area Weapons Effects (SAWE) training system. During force-on-force training in the field, SAWE will interact with the Multiple Integrated Laser Engagement System to assess casualties from the effects of indirect fire -- traditionally the biggest killer on the battlefield. This system will greatly increase the realism of field training exercises at our combat training centers.

Of course, training devices and simulators can never replace the experience gained through maneuver and live fire exercises. They can, however, raise Army proficiency by minimizing the effects of training constraints and optimizing the use of field time and training resources.

BATTLEFIELD TRAINING SIMULATIONS

The Army is exploiting the rapidly evolving capabilities of Battlefield Training Simulations as the most cost and time effective means for our commanders and staffs to refine and sustain their warfighting skills. The overall program for this initiative is the Family of Simulations, based upon compatible sets of computer hardware employing advanced simulation programs.

The Army has six corps level sets, one of which constitutes the base for the National Simulation Center at Fort Leavenworth. These systems are complemented by the 11 Army Training Battle Automated Simulation systems and 11 Brigade/Battalion Simulation systems already supporting the full spectrum of staff training. All of these simulations may be integrated with traditional command post exercises (CPX) to increase intensity and realism. Additionally, widely dispersed AC and RC units can be routinely linked by satellite for CPXs at home station.

RANGE MODERNIZATION PROGRAM

Consistent with the Army's readiness philosophy to "train as we will fight," the ultimate objective of our modernization program is to develop highly skilled individual soldiers and crews capable of hitting targets rapidly and accurately under realistic battlefield conditions. Along with the increased capabilities of the Army's new family of weapons systems, such as the Abrams tank, the Bradley Fighting Vehicle, and the Apache helicopter, significant advances have been made in the Range Modernization Program. FY90 is a turning point in our program to provide modern training facilities to match our modern equipment. Construction is either completed, ongoing, or funded for:

☐Twelve AC and two ARNG *Multi-Purpose Range Complexes* or *Multi-Purpose Training Ranges* These are the Army's key range facilities for collective live fire weapons training. They provide demanding and realistic gunnery exercises for armor and mechanized infantry platoons, as well as dismounted infantry and attack helicopter scenarios.

☐*Small arms marksmanship ranges* at all training base schools and training centers, several ARNG installations, several overseas locations, and the first complement of stateside troop installations. These modern facilities provide trainers with accurate, instantaneous feedback on the rifle, pistol, machinegun, and grenade launcher marksmanship skills of individual soldiers.

COMPUTER BASED INSTRUCTION (CBI)

CBI holds great potential for training tasks which otherwise would be too complex (battalion-level tactical engagements), or too expensive (satellite equipment repair), or too hazardous (minefield breaching) to conduct with appropriate frequency. By the beginning of FY90, the Army will have ordered more than 8,000 computer-controlled video disc systems. TRADOC will use the system to develop sophisticated extension and resident training materials and to deliver more comprehensive and intensive instruction than was previously possible.

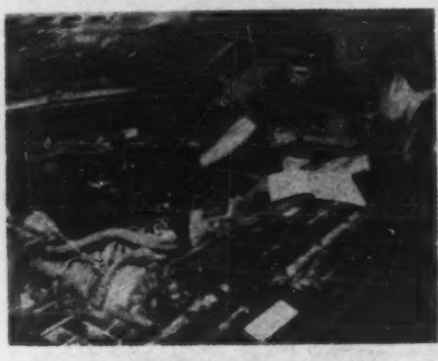
Modern ranges allow us to train soldiers in massing fire from several types of weapons.

6. RESERVE COMPONENT (RC) TRAINING ISSUES

RC TRAINING STRATEGY

The Army has developed a training strategy that will improve RC readiness in the areas of individual, leader, and collective training, as well as improved training support and management. Implemented through the RC Training Action Plan, the program is managed from HQDA with annual program oversight by the Reserve Component Coordination Council.

☐*MOS Qualification* and individual proficiency of RC soldiers continues to be one of the highest training priorities at all levels of command, with attrition and turbulence offering formidable challenges. The Army's objectives are to increase MOS proficiency levels and to reduce the burden of individual training on RC units. Exportable courses that focus on essential warfighting tasks are being developed, as are Skill Qualification Tests specifically keyed to address RC unit missions, structure, and equipment.



An AGR soldier trains Reservists at Fort Devens, MA.

☐*The Regional Training Site - Maintenance (RTS-MAINT)* program offers transition and sustainment training in 30 maintenance MOSs for RC nondivisional maintenance soldiers. Twenty-one regional sites in CONUS and Hawaii will be built, equipped, and staffed with Active Guard/Reserve (AGR) soldiers between 1986 and 1993. Tools, diagnostic equipment, and major components (e.g., engines, transmissions) at the sites will enable citizen-soldiers to get hands-on training with the Army's newest generation of weapons systems.

Four standard RTS-MAINTs have already been activated for training at Fort Dix, New Jersey; Fort Bragg, North Carolina; Camp Dodge, Iowa; and Camp Shelby, Mississippi. FORSCOM proponent RTS-MAINTs have also been activated for limited training at Fort Indiantown Gap, Pennsylvania; Fort Devens, Massachusetts; and Fort McCoy, Wisconsin. Twelve additional standard RTS-MAINTs are programmed for activation by FY93. Each standard RTS-MAINT requires 14 full-time AGR personnel. Constraints on the Full Time Manning Program could affect RTS-MAINT staffing and full implementation of this program.

☐The *High Technology Training Center (HTTC)* at Fort Dix, New Jersey provides a training environment for individual, small unit, and battle staff training through the use of simulations, training devices, and equipment not available at local RC facilities. Within six months after initiation of their first course, the New Jersey HTTC trained 4,904 personnel (a total of 12,565 mandays).

☐The *Training Technology Field Activity* at Gowen Field, Idaho has the mission of improving RC training through the testing and application of training technology. Its projects range from surveying soldiers to researching methods of instruction.

An RC soldier training with a civilian technician at Tobyhanna Army Depot, PA.

☐The *Regional Training Site - Medical (RTS-MED)* will provide a cadre, medical equipment, and other assets to train RC hospital units. The first of seven planned RTS-MEDs has already been established at Camp Shelby, Mississippi; another is programmed for activation at Fort Indiantown Gap, Pennsylvania in FY90. The other five will be activated in phases by 1992. Each RTS-MED consists of a standard five acre training site and building complete with classrooms, biomedical equipment maintenance facility, administrative offices, and warehouse space to store and assemble a 400 bed evacuation hospital. The cadre will train units equipped with the new Deployable Medical Systems in doctrine, tactics, new equipment operations, and sustainment.

☐Two centralized *ARNG Aviation Training Sites (AATS)* are located in Pennsylvania and Arizona. The Eastern AATS emphasizes individual aviator qualification training in utility and cargo rotary wing aircraft, as well as selected fixed wing aircraft. It operates a regional UH-1H Synthetic Flight Training System supporting AC, USAR and ARNG aviators on a regional basis; 15,000 hours of aircrew training were conducted during FY88. The Western AATS focuses on attack and aeroscout rotary wing training. During FY88, Western sites trained 688 aviation students a total of 9,199 flying hours. Both AATS have a mission to provide an immediate expansion capability for the Army's aviation training base upon mobilization.

☐On 1 October 1987, the current version of the *Reserve Component Noncommissioned Officer Education System (RC-NCOES)* went into effect. RC-NCOES consists of a Primary Leadership Development Course for sergeants and selected specialists/corporals; a Basic NCO Course for sergeants/staff sergeants; and an Advanced NCO Course for staff sergeants/sergeants first class. Master sergeants and first sergeants are eligible to attend the U.S. Army Sergeants Major Academy Course or other functional courses as appropriate.

OVERSEAS DEPLOYMENT TRAINING (ODT)

ODT provides RC units with realistic mission oriented training in support of the warfighting CINCs. During ODT, RC units exercise mobilization deployment plans; tailor peacetime training to wartime missions; strengthen associations with assigned AC units; and improve readiness through demanding realistic training. Early deploying units will be programmed on a 3-year cycle. Units scheduled to arrive more than a month after the outbreak of hostilities will take part in ODT every five years. These deployments constitute a highly visible demonstration of the Nation's capability and resolve to support overseas commitments.

The supported CINCs' requirements for FY89 ODT support exceed 80,000 soldiers. Unfortunately, budget constraints will hold the ODT program to levels similar to the F88 participation of 2,536 units and 45,823 soldiers. FY89 initiatives included the rotation of RC heavy equipment maintenance companies to Europe to reduce a USAREUR general support maintenance backlog while providing excellent hands-on training for ARNG and USAR personnel.

Largely as a result of budget constraints, CINC requests for FY90 and 91 have been reduced to approximately 2,500 units and 56,000 soldiers.

RESERVE COMPONENT AUTOMATION SYSTEM (RCAS)

RCAS is an automated information system that will support the decision making needs of all commanders, staffs, and functional managers responsible for RC forces. RCAS will use up-to-date office automation, telecommunications, and distributed databases to provide timely and accurate information for planning and execution of mobilization and to improve routine administration. It will be a self-sufficient system capable of exchanging data with related information systems in the AC and RC.

THE FIRST PREREQUISITE FOR A QUALITY FORCE IS QUALITY PEOPLE

E. QUALITY PEOPLE

1. THE IMPORTANCE OF QUALITY

Our potential adversaries throughout the world enjoy many numerical and geographic advantages over our forces. Only a high quality force can counter those advantages and accomplish our national military strategy. The first prerequisite for that quality force is quality people.

It is the quality of soldiers and leaders in the Army today that enables it to fulfill its worldwide strategic role in spite of its small size. It is quality in the force that allows the Army to make the most efficient and effective use of the training funds it can afford to assure the required high level of readiness. It is quality in the force that has enabled it to respond successfully to the variety of crises, conflict situations, and peacekeeping requirements in recent years, from the Persian Gulf to the island of Grenada, from the Sinai Desert to the Panama Canal. And it is the quality of the Army's forces that so convincingly demonstrates U.S. commitment to maintain deterrence along the NATO-Warsaw Pact border and the Korean Demilitarized Zone.

The Army identifies quality people by looking at both past achievement and future potential. High school diploma graduates who score in the upper mental categories are not the only candidates who make satisfactory soldiers, but statistics clearly indicate that they are most likely to succeed. Quality men and women are easier to train, less prone to indiscipline, and more likely to complete their first enlistment. Maintaining a high quality force makes the most of our modern systems, gets the best value from every dollar, and ensures a pool of high quality leaders for the future.

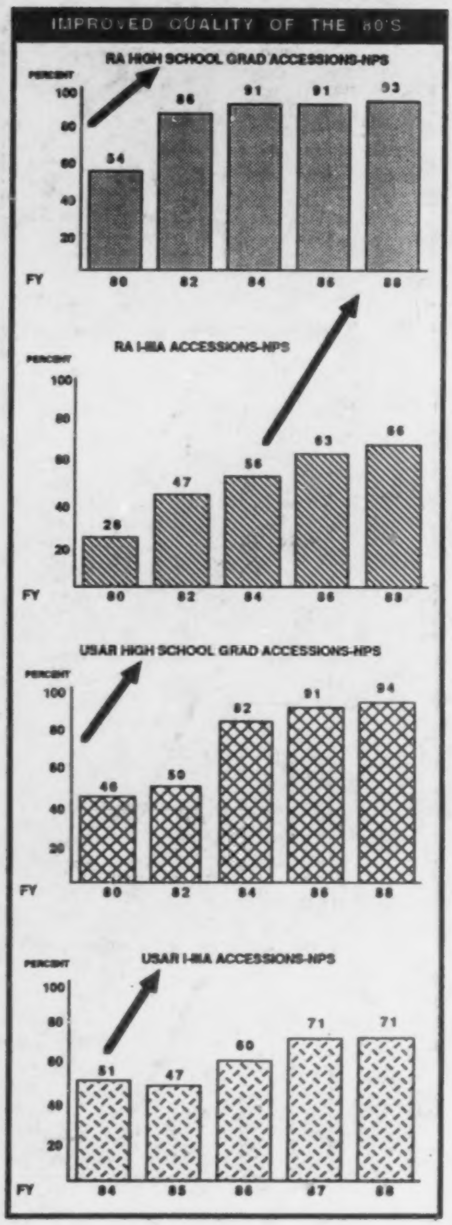
2. RECRUITING AND RETAINING QUALITY SOLDIERS

KEY PROGRAMS

FY88 marked the fifth consecutive year in which more than 90 percent of the Army's non-prior service (NPS) accessions were high school diploma graduates. Sixty-six percent of NPS enlistees scored in the top three test categories, while those scoring in the lowest category remained below 5 percent. The trend toward higher quality we have seen over the past five years extends to the RC. The results speak for themselves; lower attrition, lower AWOL rates, and fewer disciplinary problems all result from the higher quality of our soldiers. These past successes resulted from adequate funding for pay increases, enlistment bonuses, and education incentives, to include the Montgomery GI Bill.

The FY89 *pay increase* was an important factor in maintaining a high quality force. While far from closing the gap of pay comparability between military and the private sector, it did reverse a disturbing trend. Another key was allowing the Army additional flexibility in utilizing reenlistment incentives. In FY89 reenlistment bonuses continue to be targeted at specific grades and specialties.

Education is a proven tool for maintaining the Army's competitive edge in recruiting and retaining a quality force in this dynamic environment. Through the *Army Continuing Education System*, the Army offers a full spectrum of educational opportunities, from basic skills development to postsecondary programs. These educational programs benefit the Army



IMPROVED QUALITY OF THE 80'S

by improving soldiers' academic skills and duty performance. Education is an essential tool for developing today's soldiers into tomorrow's leaders.

The *Montgomery GI Bill* has contributed significantly to the quality of the force as a whole, particularly affecting those who enlist and reenlist in the Selected Reserve. As of 1 August 1988 more than 41,500 ARNG and 25,500 USAR personnel have participated in the program. This is an average monthly increase of over 1,000 for each component each month. Prior to the bill, only 75 percent of reenlistments or extensions were for a 6-year period; since its implementation, approximately 90 percent elected to remain for six years.

The Army College Fund enhancement of the Montgomery GI Bill has consistently attracted high quality recruits. The Congressional prohibitions of the Two Year Army College Fund for Non - Combat Arms has hindered recruiting of some college bound applicants critically needed by the Army. Efforts are underway to regain Congressional approval to reinstate this valuable incentive.

One method by which we seek to maintain and reinforce recent personnel successes is the *Soldier Oriented Research and Development (SORD)* program. Using scientific analysis from a number of difference disciplines, SORD looks at manpower, personnel, training, and human factors to identify ways we can get the maximum utility from our investment in each individual soldier.

Finally, the Army's *Transition Management Program* increases active duty retention by providing soldiers a realistic benchmark for evaluating service benefits to include current information on the civilian labor market, the cost of advanced education, and available educational benefits. By explaining that reserve drill pay and related educational incentives can augment starting civilian salaries and New GI Bill benefits, Transition Management also induces those set on leaving active duty status to enroll in Guard or Reserve units.

CURRENT CONCERNS

Attracting and retaining the appropriate number of high quality people for our AC, RC, and civilian work force requires competitive enlistment programs and an attractive living and working environment. Our recruiting force is competing with the lowest national unemployment in more than 14 years and the highest youth wages in recent history. Meanwhile, Army incentive and recruiting resources have been cut significantly.

When compared with the first quarter of FY88, AC recruiting and retention statistics for the first three months of FY89 are cause for concern that these reductions are already having an effect on our force:

☐Recruiting fell short of the quarterly goal by 2 percent;

☐The proportion of recruits scoring in the top three categories on the qualifications test was 14% lower than last year;

☐Accessions from the lowest mental category rose sharply.

This change of a decade long pattern of improving soldier quality follows several other indications that the quality of our force may soon follow the decline in recruiting resources.

If we are to avoid a decline in the quality of our force we must have additional enlistment programs and an attractive living environment. We need to lift the restriction on the use of the Army College Fund incentive for non-combat arms specialities. We must be able to target selective reenlistment bonuses against critical military occupational specialities. We must be able to provide wages competitive with the civilian sector. We must be able to promote deserving soldiers and, because our Army today is a married Army, we must continue programs to support our family members.

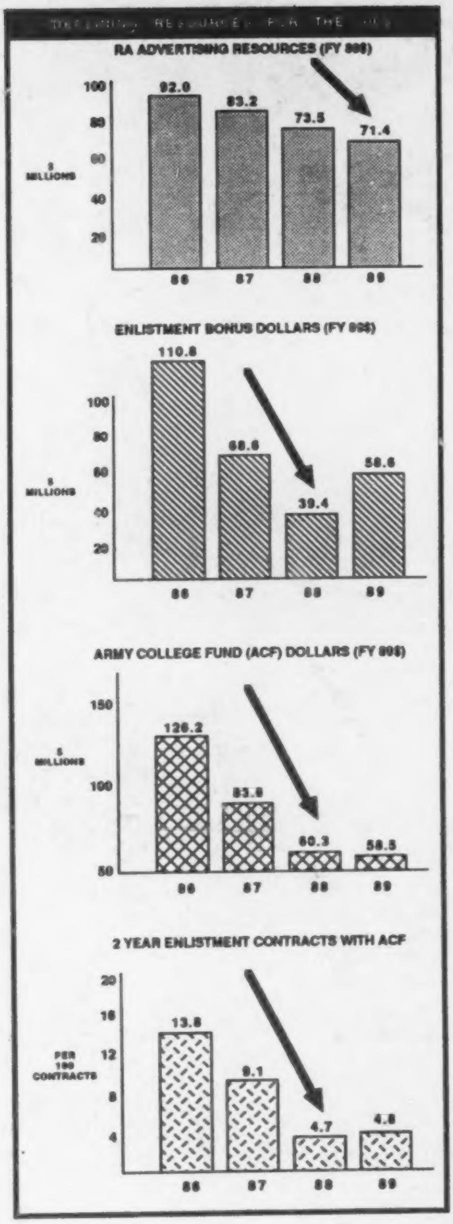
INDIVIDUAL READY RESERVE SCREENING PROGRAM

Since its inception in 1988, the Individual Ready Reserve (IRR) Screening Program has accomplished annual statutory screening for more than 240,000 reservists. The program is executed by the Army Reserve Personnel Center (ARPERCEN) in cooperation with the U.S. Army Recruiting Command (USAREC). Each month ARPERCEN orders IRR soldiers to schedule appointments at local recruiting stations where USAREC recruiters collect required documentation and forward it to ARPERCEN.

The screening program helps to increase IRR members' understanding of their military service obligation, of training opportunities available in the Army, and of membership opportunities and benefits available in USAR and ARNG units. Most importantly, it ensures that IRR records are accurate so the Army can mobilize pretrained soldiers rapidly should the need arise.

NCO REQUIREMENTS

In recent years the fielding of new organizational designs under the Army of Excellence (AOE) initiative and the introduction of modern equipment have produced a steadily increasing demand for NCOs. Inadequate retention in some specialties and the addition of many new units under AOE created serious imbalances. Significant progress in this area has been made recently through the Enlisted Force Alignment



Plan I. The active Army has reduced critical occupational imbalances from 28,800 in FY84 to 6,100 in FY88 – a 79 percent decrease.

However, shortages in funds for the Military Personnel Account forced us to reduce the NCO inventory resulting in anticipated shortages of about 14,000 NCOs in FY90. These shortages will make it more difficult to align the enlisted force with our specialty requirements and adversely impact on small unit training and readiness.

TOTAL WARRANT OFFICER SYSTEM

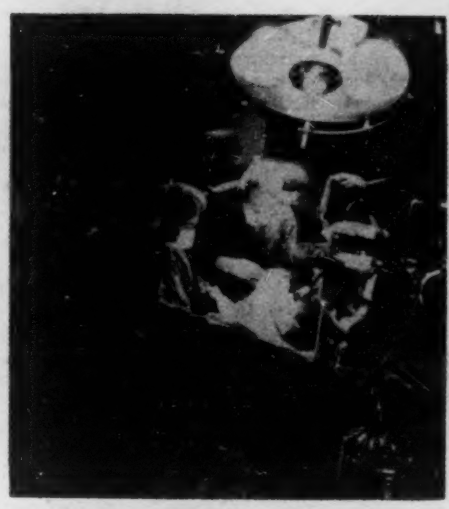
The Defense Officer Personnel Management Act of 1981 streamlined commissioned officer management within DOD but excluded the warrant officer community. Consequently, the Army has not been able to meet its requirements for experienced warrant officers. The Total Warrant Officer System is designed to correct systemic ills in warrant officer management and to stem the exodus of warrant officers at mid-career. Policy development is complete and awaiting legislative action. Full implementation will create a single promotion system, and establish the grade of Chief Warrant Officer (W5) limited to 5 percent of warrant officer strength. It will also implement selective retirement provisions, and reset mandatory retirement points to years served as a warrant officer rather than total service years. The Total Army cost to implement the new system for FY90/91 is estimated at $3.5 million, a small sum compared to the potential savings in skills and experience.

RESERVE OFFICER PERSONNEL MANAGEMENT ACT

The Reserve Officer Personnel Management Act (ROPMA) was introduced in the House of Representative on 25 January 1988. Originally drafted in the early 1980s to align RC officer management with the Defense Officer Personnel Management Act, ROPMA modernizes the laws which govern the appointment, promotion, and separation of RC officers of all services. Major features of the bill include establishment of a Reserve Active Status List, conversion of promotion selection to a best-qualified system for all ranks, use of secondary promotion zones, authority for standby promotion consideration, and selective retention of officers twice passed over for promotion. Further consideration of ROPMA will take place during the 101st Congress. The Army strongly supports this legislation.

RC MEDICAL ISSUES

As a result of initiatives to improve medical readiness, the overall picture in RC medical units has improved dramatically since 1979. Physician strength has increased from 30 percent to over 80 percent of authorizations. However, because of a continuing shortfall of doctors, nurses, and enlisted soldiers in certain wartime combat skills, the Army has developed several new training and incentive programs.



Special RC programs attract medical specialists with critical skills.

☐The *Health Professional Loan Repayment Program* provides loan repayment to health professionals in the Selected Reserve serving in shortage combat medical skills.

☐The *National Army Medical Department Augmentation Detachment* overcomes geographical boundaries by recruiting physicians and nurses where they are available and assigning them to vacancies in USAR units worldwide. Flexible training is tailored to the health professional's specialty and may be performed in a variety of settings.

☐The shortage of nurse anesthetists and operating room nurses in the RC is being partially offset by training ARNG Nurse Corps officers in civilian accredited schools. The *Nurse Anesthetist Civilian Education Program* allows the ARNG to pay for this training. Additionally, an *Army Operating Room* course has been developed to provide RC nurses with the training and preparation required to function as staff nurses in the operating room.

☐The *Specialized Training for Army Readiness Program* enables selected USAR enlisted medical soldiers to acquire advanced individual training in some medical technician specialties by attending civilian educational institutions at government expense.

☐Finally, the *Specialized Training Assistance Program* provides a monthly stipend to reservists training in anesthesiology, general surgery, orthopedic surgery, medical-surgical nursing, operating room nursing, and nurse anesthesia.

As the marketing of these programs expands, significant improvement can be expected in the medical mobilization capability of the RC combat service support forces.

FULL TIME SUPPORT (FTS) PROGRAM

The FTS program is the framework upon which the readiness of the RC is built. It employs a relatively small number of full time soldiers and Army civilians to perform planning and administrative tasks so that the majority of RC soldiers can concentrate on quality training during their limited training time. Four categories of personnel form the RC FTS team:

☐*Active Guard/Reserve (AGR)* soldiers perform full time administrative, recruiting, training, and logistical support for units.

☐*Active Component (AC)* soldiers contribute experience and expertise from the AC to support force modernization.

☐*Military technicians*, required by law to be members of the Selected Reserve, provide administrative, maintenance, training, and logistical support in Reserve organizations.

☐*DA civilians* provide administrative and clerical support. The requirement for some RC units to mobilize and deploy rapidly mandates increased levels of full time support. As in FY89, however, the prioritized FY90/91 budget does not provide for enough personnel to fulfill the FTS mission. In the long run, this deficiency endangers our RC readiness.

WOMEN IN THE ARMY

Since FY60, AC female strength has grown from 4,250 officers and 8,279 enlisted soldiers to about 11,700 officers and 71,000 enlisted, or 10.8 percent of the force. There are 9,700 female officers and 47,000 enlisted soldiers (19%) in the USAR and 2,700 female officers and 22,900 enlisted (5%) in the ARNG.

Army policy is that women will be provided full and equal opportunity to pursue military careers and will be assigned in all skills and positions except those closed under the Army's Direct Combat Probability Code. Presently, 319 of 368 enlisted Military Occupational Specialties, 70 of 77 warrant officer specialties, and 198 of 207 commissioned officer specialties are open to women.

RETIREE SUPPORT

As members of the Total Army Family, retirees deserve the support of the Active Army and the Nation not only as reward for long and honorable past service, but because they are still serving.

Retirees contribute to readiness and to manning the total force in a variety of tangible and intangible ways. More than 126,000 hold mobilization orders, ready to augment and backfill deploying units with qualified and experienced personnel on short notice. During peacetime, they promote the "Army Story" in the local civilian community and serve as adjunct recruiters. At installations, they serve as volunteers in various training and community programs that contribute to our soldiers' quality of life. As customers in the post exchanges, they add a considerable sum to local morale and welfare funds upon which so many of our quality of life programs depend.

In this time of budget constraints, the support and contributions of retirees become even more important. It is therefore appropriate that the Nation support the benefits and entitlements these dedicated men and women have earned to include medical care, cost of living increases to retired pay, and commissary/post exchange privileges. One of the most important challenges in this regard is the staffing of military medical facilities since staff shortages restrict our ability to provide retiree medical care. Another concern is that cost-of-living adjustments to military retired pay have not kept pace with those provided Veterans benefits and Social Security. The unfairness of this situation and the loss and erosion of other benefits does not escape the attention of soldiers contemplating a military career.

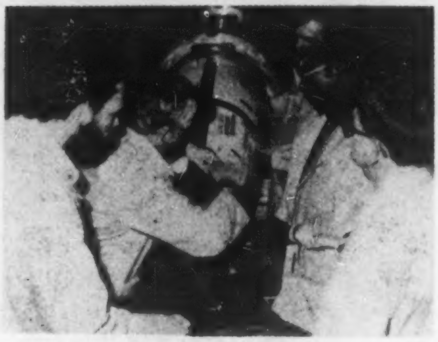
More that 90 percent of Army job specialties are open to women.

3. MAINTAINING A QUALITY CIVILIAN WORK FORCE

CIVILIAN MANPOWER PROGRAM

Since FY85, Congress has exempted DOD from caps on the number of civilians employed on the last day of the fiscal year. This exemption allows DOD activities the flexibility to hire the required number of civilians to perform authorized missions. Exemption from personnel ceilings also promotes productivity by encouraging managers to select the most cost effective way to accomplish their missions, as opposed to maintaining a strength level assigned by statute.

While Congress has renewed the ceiling exemption on an annual basis since FY85, beginning in FY87 Congress imposed a ceiling on the number of hours worked by civilians in overseas activities. This ceiling, expressed as a workyear limitation, seriously detracts from readiness by forcing commanders to assign soldiers from combat units to perform essential duties in dining facilities, gymnasiums, typing pools, and other areas where jobs could be performed more economically by either U.S. civilians or local nationals. Permanent elimination of year end employment ceilings would help us keep soldiers working in those jobs for which we recruited and trained them.



Civilian technicians ready on ATACMS missile for test firing.

MANAGING THE CIVILIAN WORK FORCE TO BUDGET (MCB)

MCB is a civilian personnel modernization initiative being tested at 15 Army activities. It involves delegation of authority for position classification and management of civilian personnel resources to the lowest practical level of supervision. Administrative controls on employment levels, high grade positions, and overtime are replaced by a single dollar limit for civilian personnel costs. This allows commanders and local supervisors to structure their work force according to mission requirements without arbitrary and artificial constraints. MCB also requires activities to develop incentives for increased productivity by returning savings to well managed organizations. Contingent upon interim and final evaluation by the Army Audit Agency, implementation may commence Armywide as early as FY90.

CIVILIAN PERSONNEL PLANS

Army civilians work in more than 600 occupations and constitute more than three-fourths of the personnel assigned to key functions, such as logistics (91 percent), research and development (82 percent), and base operations (77 percent).

In recent years, several initiatives have improved the effectiveness of our civilian personnel management. The Office of Personnel Management (OPM) has granted increased authority for Army managers to hire more civilians directly rather than relying on central OPM recruitment. Along with the affirmative actions goals established for the majority of the Army work force, management officials are becoming more personally involved in moving women and minorities into the Senior Executive Service. Additionally, outreach efforts have been expanded to emphasize executive training and rotational assignments for potential senior executives at the GM-14 and GM-15 levels.

Recent budget cuts and the prospect of lean budget years in the future have an adverse effect on the morale and vitality of the civilian work force. The immediate consequence is reduced job security and fewer rewards for a job well done. In the long term, reductions impact directly on the military force as the level of civilian support is reduced.

4. QUALITY OF LIFE

The term "quality of life" covers a full range of Army programs, facilities, and services that impact on the living and working conditions of our soldiers, civilian members, retirees, and their families. Congress has supported us in this area, but much remains to be done. Physical fitness centers, child care facilities, improved barracks, and maintenance and construction of family housing are still critical needs. Child development services for our families, including sole and dual military parents, are important to our readiness. Medical care is also consistently cited by Army families as a priority issue.

Army members and their families are our most important resource. We cannot afford to neglect their needs if we want to attract and retain quality soldiers. Thus, quality of life programs are essential to continued readiness. They represent an essential investment in the future.

ARMY COMMUNITIES OF EXCELLENCE

Army Communities of Excellence (ACOE) is a capstone program that focuses all installation management activities toward providing excellent services and facilities for our soldiers, civilians, and families. The purpose of ACOE is to improve the living and working conditions for those who use, live, train, and work in Army communities, and to instill a sense of pride and accomplishment in all community members. ACOE applies to the Total Army and every installation activity, with service guidelines provided by Department of the Army (DA) proponents, and service standards provided and implemented by MACOMS.

ACOE is based on the principle that communities support people by combining excellent services with excellent facilities. These two facets of community excellence cannot be separated. Facilities Excellence is promoted through:

☐An Installation Design Guide;
☐An expanded self-help program;
☐Coordinated building exteriors;
☐Coordinated building interiors and furnishings;
☐Coordinated sign design;
☐Reduced visual clutter;
☐Planting and landscaping; and
☐Planning for lighting, roads, environment, and utilities.

Service excellence cuts across the entire functional spectrum of community agencies and includes:

☐Quality that replicates successful civilian counterparts;
☐Response to customer feedback;
☐Courtesy; and
☐Promptness.

Since the program was initiated in June 1988, it has been actively promoted through conferences with general officers and members of the Senior Executive Services, teleconferences with MACOMs, and numerous information briefings. A Commander's Briefing Book, an ACOE Video Tape, and DA Pamphlet 600-45 *Guidelines for Community Excellence* have been produced and distributed. MACOM implementation plans have been finalized, and initial DA service guidelines have been distributed to the field. MACOMs are now establishing local service standards for the activities on their installations. The ACOE payoff includes improved quality of life; improved recruiting and retention; increased productivity and performance; and increased combat readiness for our Army.

An ACOE initiative: This computer in Korea, linked to the Army Finance Center in Indiana, resolves pay inquiries on the spot.

MEDICAL AND DENTAL CARE

During an average day, Army medical treatment facilities worldwide provide 52,059 outpatient visits, admit 1,115 patients, serve 6,247 inpatients, deliver 114 infants, and perform 72,149 dental procedures. The Army continues to place a high priority on providing quality medical and dental care to all eligible beneficiaries. Goals include expanding the direct care system and improving access to health care within the Army system. This will reduce reliance on CHAMPUS which now costs an average of 41 percent more than comparable care at an Army medical facility.

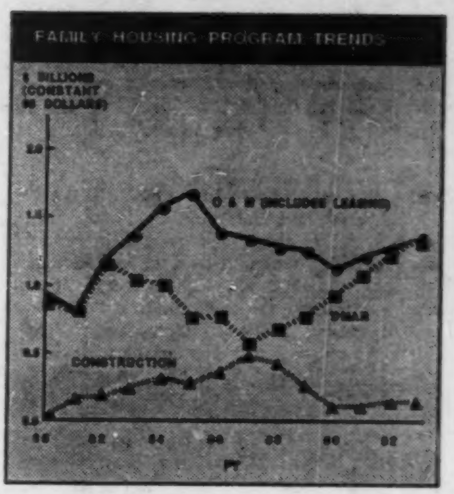
Medical care for families is a key factor in retaining soldiers in the Army.

In 1985, the Army began establishing satellite primary care centers; known as Primary Care of the Uniformed Services (PRIMUS) clinics, at off-post locations near large concentrations of active duty families. At these centers, contracted medical professionals provide outpatient care for minor illnesses and injuries without involving the CHAMPUS program or incurring CHAMPUS costs. Today, there are ten PRIMUS clinics located in Virginia, North Carolina, Georgia, Texas, and California. This system operates 365 days a year and accommodates 1,665 patients daily.

The Army Medical Enhancement Program (AMEP) will increase the availability of treatment while reducing CHAMPUS costs by improving direct care staffing in such areas as Family Practice and OB-GYN. The Army is also testing a proposal to give military hospital commanders control over both CHAMPUS funds and their own operating budgets. Reduction of occupational related diseases and injury continues to be a high priority; a worldwide back injury prevention program for soldiers and civilians is expected to reduce loss of training time, compensation claims, costs, and lost productivity. Twenty-five Military Occupational Health vehicles also are being fielded worldwide to take preventive medicine services to the soldier and reduce time away from training. Finally, the Army has recently increased access to dental care for approximately 190,000 families through the Delta Dental Insurance Plan.

FAMILY HOUSING

The availability of suitable family housing for all soldiers and families is one of the Army's top quality of life issues. During the early 1980s, Congress provided adequate funds to support operating and maintaining the existing inventory. In locations where the civilian community did not provide suitable housing, additional housing was acquired through new construction and the build-to-lease program. The success of this program has led to the expansion of build-to-lease agreements to ten additional locations in FY90. However, recent analysis still shows a valid need for more than 7,000 new family housing units.



The FY90/91 budget funds 276 new housing units on Oahu, Hawaii, and one unit in Verona, Italy. It provides for upgrades to 333 substandard units and renews or improves 3,416 others. However, given current budget constraints, the bulk of available funding is now applied to operations and maintenance (O&M). The present budget will allow us to serve 227,856 Army families with government controlled housing by FY91, but it will not allow for timely renovations, and needed improvements will slip farther behind schedule.

The average Army family housing unit is almost 34 years old. The progress made in the early 1980s in attaining additional suitable Army housing increased our O&M needs. The program trends on the accompanying graph show that deferred maintenance and

The average family housing unit was built in 1955. Many quarters once considered adequate (left) now require renovation (right).

repair (DMAR) grows as O&M resources fall short of our needs. The result is inadequate and deteriorating family housing units which impact directly on morale and, ultimately, on retention of our highly trained soldiers and their families. The overall trend paints a disturbing picture of family housing support in the future.

VARIABLE HOUSING ALLOWANCE (VHA)

Soldiers deserve a total housing allowance which allows them to obtain suitable accommodations regardless of duty station. Because the basic allowance for quarters (BAQ) is not adequate to cover normal housing expenses or the actual cost of living in most areas of the United States, a VHA supplements BAQ. However, a congressionally imposed ceiling on the annual amount of funds available for VHA prevents the housing allowance system from operating as it was intended. Therefore, soldiers must bear an unacceptably high percentage of housing costs. Removal of the VHA ceiling is essential if we are to provide an adequate housing allowance to all our service members.

FAMILY SUPPORT

The *Army Community Services (ACS)* Program is the cornerstone of our family programs. The FY90/91 Budget institutionalizes standardization of ACS personnel and services programs. Significant progress is being made in extending preventive social services to junior enlisted families and reducing relocation stress through the development of standard briefing packages and video tapes to orient soldiers and families who are moving overseas.

Child Development Services provide center and quarters based child care to reduce the impact of parental responsibilities on unit mission requirements. More than 150,000 children benefit from this service annually, and demand continues to exceed capacity. The *Family Child Care Program* also continues to expand with 8,189 registered homes serving nearly 40,000 children.

The changing focus of *Youth Activities* from a sports oriented program to a youth development program is a significant step in the Army's family program. One example is the *Career Explorations Program*, designed to provide work experience for young people and to assist them in making career decisions.

MORALE, WELFARE AND RECREATION (MWR)

The MWR Program supports Army readiness and retention goals by promoting and maintaining the social, mental, and physical well-being of soldiers and their families. Our goal is to improve the quality of programs, goods, and services to soldiers and their families while maintaining efficient and effective management of both appropriated fund (APF) and nonappropriated fund (NAF) resources. Recent research has highlighted the important role MWR plays in our soldiers' attitudes toward Army service.

Under congressional direction, the Army has continued aggressive action to reallocate APF support away from business activities to those that are mission sustaining. Initiatives to reduce operating costs, improve service, and generate additional NAF income include: third party financing for transient lodging fa-

WELCOME HOME
1/504

Quality of life programs support readiness by maintaining the physical, mental, and spiritual health of our soldiers and their families.

cilities; joint ventures with the Army and Air Force Exchange Service (AAFES); professional surveys and market analyses for the NAF major construction program; modernized personnel systems and training for MWR managers; and centralized management of the Armed Forces Recreation Center in Germany by the U.S. Army Community and Family Support Center.

During FY88, professional market analyses of the NAF major construction program yielded a savings in construction costs of over $33 million. Initiatives to generate additional NAF income through commercial travel contracts and joint ventures with AAFES on Burger King and pay telephones resulted in over $24 million in new money for installation MWR programs.

Concurrent with actions to focus APF support on mission sustaining activities, the Army is evaluating alternatives such as AAFES management of major revenue producers and management contracts with private organizations. AAFES management of package beverage stores is expected to result in additional income to installations of approximately $6 million per year.

RELIGIOUS SUPPORT

Strengthening and sustaining the spirit of soldiers and family members through religious support is one of the Army's most basic requirements. More than 1,500 chaplains representing approximately 99 denominations and groups use 586 chapels and 141 religious education facilities around the world for worship, religious education, and pastoral support. In the United States, 55 percent of the chapels are temporary World War II wooden structures as are 76 percent of the religious education facilities. Construction efforts in this area include three combination child development centers/religious education facilities already completed and four now under construction. Increasing religious diversity and the rising proportion of ethnic and minority members in the Army community constantly challenge our resourcefulness in providing for the free exercise of religion for all soldiers and their family members.

Chaplains support our soldiers where they live and work.

PX PROGRAM

AAFES plays a key role in providing quality of life for our soldiers. The Army's share of earnings goes to MWR in the form of dividends that are used primarily to modernize facilities. During FY88, AAFES provided merchandise and services to active duty and retired Army and Air Force members and their families located in CONUS at an average savings of about 25 percent. The AAFES dividend contribution to Army MWR for the same period was in excess of $66 million.

In response to congressional directive, the Army, Air Force and AAFES reached agreement in FY88 concerning AAFES management of package beverage stores worldwide. A guaranteed portion of these earnings will remain at the local installation level, as do a percentage of earnings from the AAFES Burger King franchise outlets and pay telephone concession contracts.

THE COMMISSARY PROGRAM

Army commissaries also provide vital support for our soldiers and their families. The commissary construction program provides for replacement or modernization of commissaries from surcharge funds paid by commissary patrons. In FY89 and FY90 the Army plans to spend $96.1 million in surcharge funds on replacements and major renovations of 13 commissaries worldwide. As of 1 October 1988, Forts Polk, Wainwright, and Ord, West Point, Carlisle Barracks, Walter Reed Army Hospital, and Yuma Proving Ground in the United States, and Wuerzburg, Vilseck, Aschaffenburg, Dexheim, Erlangen, Garlstedt, and Zweibrucken in West Germany were undergoing commissary upgrades purchased with surcharge funds. FY90 funding will provide for replacement and upgrading of three commissaries overseas and one commissary in the United States.

FEEDING OUR SOLDIERS

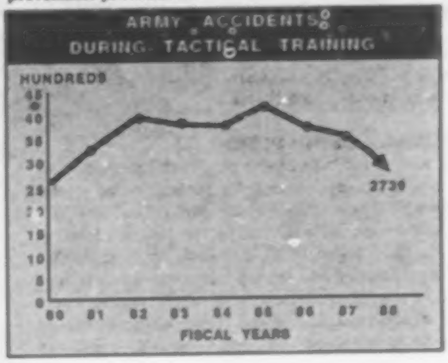
Dining facilities have a positive impact on soldier morale and contribute to unit cohesion and soldier retention. The Dining Facility Modernization/Construction program is an Army effort to upgrade troop dining facilities to DOD standards by modernizing food preparation and serving areas, storage areas, and troop dining areas. Modernization will improve operational efficiency and offer a variety of menu options to include fast food lines, soup and salad bars, and low calorie menus. Construction is required to replace some existing facilities because of nonrepairable deterioration or outdated design. The average age of Army dining facilities is 35 years; more than half require modernization or replacement. New facilities will also be constructed to support force structure changes and unit activations.

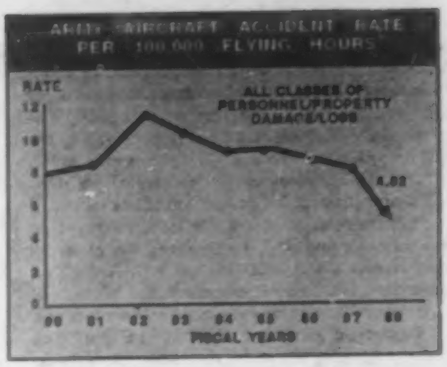
A similar initiative is underway to modernize the Troop Issue Subsistence Activities (TISA) which provide wholesale subsistence support to dining facilities. Thirty-five of our 70 TISAs are in dire need of replacement. Standardized design, coupled with a 10-year replacement plan, has been developed to address the problem. One innovative alternative being explored is private sector financing. Private corporations will design, construct, own and operate two test facilities, while the Army draws on O&M funds to pay for the products and services offered.

5. THE ARMY SAFETY PROGRAM

The objective of the Army Safety program is to protect and preserve Army personnel and equipment against accidental losses. In the past six years, the Army has achieved significant success in preventing accidents along with associated injuries, fatalities, and degradation of mission readiness. Major progress has been made in two high risk areas: aviation accident rates are the lowest in the history of Army aviation and training accidents are the lowest in seven years.

Our strategy is to integrate prevention techniques into training standards. This requires leaders to minimize accident risk while achieving operational objectives. TRADOC is incorporating this strategy into leader instruction and integrating accident prevention methods into individual basic skills training. TRADOC has also assessed all phases of training development to identify high risk activities and establish accident prevention procedures.





This proactive approach extends to aviation safety where we conduct continuous evaluation to identify hazards in an increasingly demanding environment. In one of the most recent initiatives, the Army has begun to install flight data recorders on Army aircraft to identify accident causes and corrective actions.

The increasing complexity and lethality of ammunition and explosives is a special challenge. The Army's Explosives Safety Management Plan aims to improve combat readiness by controlling the inherent hazards associated with transportation, storage, handling, use, and disposal of explosives. A new Technical Center for Explosives Safety provides technical guidance to field commanders and an Executive Director of Explosives Safety provides for centralized execution.

6. HUMAN RESOURCES

The goal of the Army Health Promotion Program is to maximize readiness, combat efficiency, and work performance by keeping our people healthy. Health risk education programs promote behavior modification in the following areas: nutrition and weight control; tobacco cessation; stress management; drug and alcohol abuse prevention; suicide prevention; dental health; and early identification of hypertension.

Since initial implementation of the program in October 1987, more than 50,000 individuals have participated in health risk education programs. Army support has included development of 14 DA pamphlets, purchase of 160 computers and optical scanners, and hiring of coordinators to implement education follow-up programs. Future funding will provide for the additional personnel needed to extend the program throughout the Total Army.

The *Army Alcohol and Drug Abuse Prevention and Control Program* seeks to combat drug and alcohol abuse through prevention, identification, and rehabilitation of substance abusers. The deglamorization of alcohol, and drug testing are the major deterrents to alcohol and drug abuse. Surveys indicate that consumption of alcohol and illegal drugs is declining in the Army. FY90/91 programs will follow through on FY89 initiatives, including the President's Drug Free Workplace Plan, 20 percent random drug testing for the USAR and ARNG, and expansion to testing for five drugs.

The *DOD Human Immunodeficiency Virus (HIV) Policy* prohibits individuals infected with HIV from enlisting or being appointed into military service. AC and RC members are tested at least every other year. Active duty HIV-infected soldiers are medically evaluated and are returned to duty if fit, or medically separated/retired if unfit. If HIV-infected RC soldiers can prove fitness for duty, they may continue in a nondeployable position in the Selected Reserve. All soldiers receive unit level training about HIV infection and ways to prevent transmission.

7. ENVIRONMENTAL COMPLIANCE

The Army is committed to protecting our environment and conserving our natural resources for future generations. We are committed to complying with applicable environmental laws and regulations, and to minimizing adverse environmental impacts while maximizing readiness. In FY90, the Army, in close coordination with Federal, State and local agencies, will continue to focus on the following major elements of the Army Environmental Program:

☐Environmental assessments and impacts;

☐Environmental restoration (to include management of hazardous solid waste and toxic materials);

☐Environmental noise abatement;

☐Air pollution abatement;

☐Water resources management; and

☐Radon reduction and asbestos management.

The wide variety of complex environmental laws and regulations, and the associated clean-up costs make compliance with these laws an increasing challenge.

The Army's success in achieving its environmental goals is evidence of our commitment to the environment. However, needs are growing, and additional resources are essential to ensure Army compliance in the future. The FY90/91 funding level barely allows us to meet the most critical environmental needs.

F. Modernization

1. A CONTINUOUS PROCESS

The Army has significantly improved its conventional capabilities in the past eight years, but not enough to keep pace with Soviet ground forces' modernization. There is a particular need for stable funding and an adequate budget, one sufficient to permit continued acquisition of modern weapons and an industrial base capability to ensure that we can match Soviet capabilities.

Our strategy is to modernize the Army "by thirds" sequentially with priority to units that are "first to fight" regardless of component. As we field new systems to forward deployed and early deploying forces (first one third) we simultaneously refurbish and reissue the displaced systems from these units to follow on units (second one third), and later deploying units (final one third).

Modernizing the Army is a continuous process. It requires constant assessment and improvement of doctrine, force structure, training, equipment, and the associated production, mobilization, and sustainment base. It must also take into account our collective security responsibilities and the probability that we would face a major threat with allies whose modernization efforts must be compatible with our strategy, by fielding a force that leaves any aggressor too unsure of victory to risk the consequences of defeat.

Over the past decade, the Army has had great success in applying our technology to the development of capable and competitive fighting systems. By the end of 1991 our Army will contain:

☐86 battalion sets and 17 cavalry squadron sets of M1 Abrams tanks;

☐69 battalion sets of Bradley Fighting Vehicles;

☐13 field artillery battalion equivalents of MLRS;

☐26 attack helicopter battalions of AH-64 Apache helicopters; and

☐9 forward deployed and 3 CONUS based Patriot air defense battalions.

These systems and others discussed in this section are products of our investment strategy which emphasizes:

OUR NATIONAL MILITARY STRATEGY REQUIRES MODERN GROUND FORCES WITH HIGH QUALITY EQUIPMENT

☐Leveraging key technologies to produce systems with major improvements in capability over the systems they replace;

☐Provision for pre-planned product improvements from the outset, allowing our new systems to evolve with the threat;

☐Synchronized production and fielding of systems across mission areas to create battlefield synergism and prevent piecemeal modernization;

☐Acquisition of Non-Developmental Items (NDI) already available in the marketplace in order to speed fielding and reduce cost.

This acquisition strategy makes sound business sense and offers operational advantages. We also strive to produce systems at economical production rates using multiyear procurement where practical.

The mission area modernization plans discussed below provide for synchronized mission area modernization in the most cost effective manner. Funding reductions will complicate this acquisition strategy, slow the Army's momentum in modernization, and raise the risk associated with our National Military Strategy.

An ATACMS leaves the launcher on a successful flight test.

2. COORDINATED PROGRAMS

Besides answering specific individual threats to our forces and our strategy, equipment modernization programs must be carefully coordinated to support our doctrine. Key to our success is the ability to maintain a balanced set of modernization plans that encompass heavy and light forces, as well as all aspects of the operational environment (close, deep, and rear). Further, we must ensure these plans fit within resource constraints.

Individual modernization programs are coordinated within specific mission areas through the "system of systems" approach. We strive to avoid "stand alone" modernization plans, preferring programs that are integrated with other elements of the force. Key efforts in this regard include:

AVIATION MODERNIZATION PLAN (AAMP)

The AAMP provides for fielding and sustaining an effective aviation fleet into the 21st century. The plan reduces the number of rotary wing aircraft from 8,500 to 6,500, while increasing net capability by applying advanced technology. It provides for production of the AH-64A Apache, UH-60A Black Hawk, CH-47D Chinook, and OH-58 with a stable funding goal of $3.5 billion annually after inflation.

ARMOR - ANTIARMOR (A3)

Through their rapid fielding of reactive armor and new tank variants, the Soviets have eliminated the technological lead the United States and NATO enjoyed in this area. The A3 program is designed to correct the current imbalance and reestablish our qualitative advantage.

The A3 task force is developing a focused, affordable modernization plan that will include tactics, training, and weapons systems initiatives. Hardware advances will concentrate on improved protection of the main battle tank, and increased lethality of kinetic and chemical energy projectiles. The Army is concentrating on compressing the decision and fielding cycles for our major armored fighting systems. Success in this effort to regain qualitative superiority against a numerically superior threat is fundamental to the success of our national military strategy.

DEEP OPERATIONS

An improved deep operations capability is essential to maintaining deterrence in the future and accomplishing our wartime missions without undue reliance on nuclear weapons. Deep operations systems will allow us to engage threat forces before they are committed to combat in order to deny the enemy the opportunity to mass forces, and to break the tempo of his operations. This "system of systems" will integrate a number of separate capabilities that include target acquisition, intelligence, attack, and command and control means. Key Army components to be fielded and constantly improved include the MLRS, the Army Tactical Missile System (ATACMS), the Joint Surveillance Target Attack Radar System Ground Station Module (JSTARS GSM), Guardrail Common Sensor (GR/CS), and the All Source Analysis System (ASAS).

FIRE SUPPORT MODERNIZATION PLAN

Soviet and Warsaw Pact doctrine calls for the massive use of fire support, predominantly field artillery cannon, rocket, and missile fires. In a main attack by Pact first echelon forces, fire support would comprise 75 to 80 percent of the combat power used to achieve the breakthrough that would then be exploited by massive tank forces. Soviet/Warsaw Pact field artillery outnumbers that of the United States/NATO by almost 5:1 and over the past 20 years has been modernized at a much faster rate than U.S. field artillery.

In their 1988 study, "Countering Soviet Fire Support Systems," the Defense Science Board (DSB) clearly identified the nature of the increasing threat posed by Soviet/Warsaw Pact fire support systems. The DSB made specific recommendations for accelerated development and fielding of fire support and related systems, and for significant increases in DOD allocation of funds to the Army in order to boost research, development, and acquisition.

The Fire Support Modernization Plan incorporates many of the recommendations of the DSB and of the Field Artillery School's Fire Support Master Plan. Near term objectives include:

☐Improvements in fire support capabilities for close support, counterfire, and deep attack;

☐Replacement of the 8-inch howitzer by more effective systems;

☐Accelerated MLRS procurement and fielding;

☐Accelerated fielding of the improved 155mm howitzer and development of the next generation cannon system;

☐Fielding of the ATACMS and other deep battle systems;

☐Improvements in target acquisition and fire support command and control systems; and

☐Accelerated development and fielding of smart munitions such as the Sense and Destroy Armor Munition (SADARM) and ATACMS Block II for cannon, rockets, and missile systems.

Long term recommendations are for increased technology base research and development (R&D) to permit the Army to stay ahead of competing fire support improvements by potential aggressors.

AIR DEFENSE MODERNIZATION PLAN

The Air Defense Modernization Plan is a disciplined effort to develop current Army forward area air defense initiatives into a unified structure which will counter the constantly evolving threat. The program is divided into three phases:

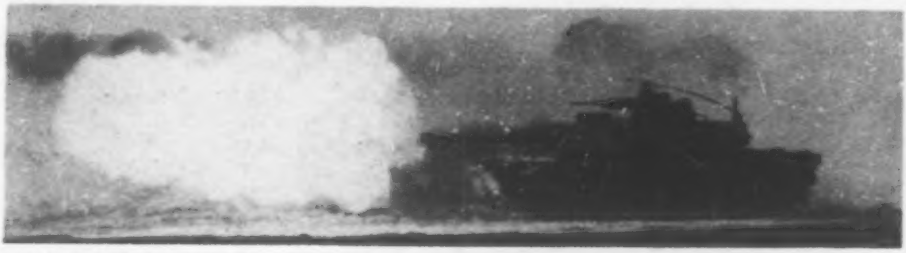
Phase I will reconfigure division air defense units within FORSCOM, EUSA, and WESTCOM. Displaced equipment will be used to activate new corps level air defense units.

Phase II is tied directly to availability of the new Forward Area Air Defense System (FAADS) components and affects selected FORSCOM, USAREUR, and ARNG air defense units. As the Pedestal Mounted Stinger is fielded in Europe, Chaparral fire units will be displaced to form new corps level battalions.

Phase III of the Modernization Plan is the worldwide fielding of the FAADS family to the AC, ARNG, and war stocks.

CLOSE AIR SUPPORT (CAS)

Army units need responsive and reliable (day, night, and adverse weather) aerial fire support in close proximity to friendly troops. This mission requirement has been reaffirmed by the Army and Air Force continuously since World War II. The current DOD



The Abrams tank is the mainstay of our heavy force.

Defense Guidance directs the Air Force to upgrade the existing CAS-capable aircraft fleet and/or develop a new aircraft to perform CAS in the mid-1990s. Additionally, Congress directed DOD to provide a "Close Air Support Master Plan."

Design and selection of a future CAS aircraft is an Air Force responsibility. However, the Army has articulated the ground commanders' requirements for the combat system, and will participate with the Air Force in reviews of CAS system designs. Army goals are to ensure CAS studies are rigorous, CAS systems capabilities support AirLand Battle doctrine, and sufficient resources are allocated to CAS systems.

3. CLOSE OPERATIONS SYSTEMS

ABRAMS TANK

Rapid improvements in armor-antiarmor forces worldwide and particularly in the Soviet Union make it imperative that we continuously improve our tank fleet. The Army began production of the basic M1 in 1980. In 1985 the Army began fielding the Abrams Block I (M1A1) with a series of upgrades including the 120mm cannon, improved armor protection, a nuclear, biological and chemical (NBC) over-pressure system, and a micro-climate cooling system. The M1A1 will continue in production through FY91. By the end of FY89, all U.S. armor units in Europe and most AC armor units in CONUS will be equipped with the M1 or M1A1.

In FY90, acquisition of long-lead materiel required to produce Abrams Block II (M1A2) tanks in FY92 will begin. Block II will provide enhanced survivability, improved target acquisition and fire control equipment, and improved reliability.

BRADLEY FIGHTING VEHICLE (BFV)

The M2/M3A2 survivability improved Bradley provides mechanized infantry and armor with the most advanced fighting vehicle in the world. Survivability improvements include new armor protection, fragmentation liners in the troop compartment, and modification of fuel and ammunition storage. Production of these improvements began in May 1988. By the end of 1988, 33 battalion sized units, including four ARNG battalions, had received the BFV. FY90 is the beginning of a multiyear procurement set at 600 vehicles per year through FY94.

AH-64 APACHE

The AH-64 is the Army's primary antiarmor attack helicopter. Various combinations of Hellfire missiles, Hydra 70 rockets, and 30mm ammunition may be employed depending upon mission requirements. As of 1 January 1989, more than 400 AH-64s have been fielded in 11 combat ready battalions. The planned force structure is 975 Apaches. The first ARNG AH-64 battalion was successfully fielded in August 1988. During FY90/91, 72 Apaches will be purchased each year.

An Apache carrying Hellfire missiles searches for targets.

HELLFIRE

The Hellfire Missile system is an air-to-ground laser guided missile system designed to defeat individual hardpoint targets and to minimize exposure of the delivery vehicle to enemy fire. Deployed with the AH-64 Apache, the Hellfire can be employed in single shot, rapid, or ripple fire. This year's budget requests 3,102 missiles in FY90 and 3,002 for FY91. Ongoing missile improvements include a digital auto-pilot and warhead improvements to defeat the future armor threat. Planned improvements will protect the laser seeker against countermeasures, and add a fire and forget capability for bad weather.

The BFV provides infantrymen with firepower and mobility to complement the Abrams.

With its unique mast mounted sight, the AHIP is the finest scout helicopter in the world.

ARMY HELICOPTER IMPROVEMENT PROGRAM (AHIP)

Scout helicopters perform vital reconnaissance missions, as well as intelligence, surveillance, target acquisition, and target designation. The AHIP, or OH-58D, gives the U.S. Army the finest scout helicopter in the world. Operating day or night and in adverse weather, AHIP employs a thermal imaging system, laser range finder/designator, and high power television incorporated into a mast mounted sight. The aircraft will gain an air-to-air capability with the addition of Stinger missiles in FY90, and the Army is exploring an armed AHIP concept to provide a selection of interchangeable weapons. The Army ultimately intends to purchase 375 AHIPs for fielding in cavalry and field artillery aerial observation units.

FORWARD AREA AIR DEFENSE SYSTEM (FAADS)

Given the threats already posed by improved helicopters, aircraft, and long range weapons, the rapid modernization of our forward area air defense is essential. FAADS is an integrated program of complementary systems that will ensure freedom of maneuver for ground forces and protect critical communications, fire support, and combat sustainment elements on the AirLand Battlefield. Sub-systems include:

☐*Line of Sight - Forward - Heavy (LOS-F-H)* is a NDI which will defeat helicopters and fixed wing aircraft at long ranges to protect the heavy division's combined arms team in the close battle fight. After extensive testing, Martin Marietta's ADATS has been selected. If operational testing is successful, the program will begin full scale production in FY90.

☐*Non Line Of Sight (NLOS)*, the Fiber Optic Guided-Missile (FOG-M), is a long range anti-helicopter system that can defeat targets masked by terrain and beyond direct fire range. Test flights have destroyed helicopter targets up to 10km from the firing unit. In FY89 the program began full scale development.

☐*Line of Sight-Rear (LOS-R)*, the rearmost FAADS weapon, is the Pedestal Mounted Stinger (PMS), a lightweight, highly mobile, line-of-sight system which uses the proven Stinger missile to provide low altitude defense against fixed-wing aircraft and helicopters. PMS operates in both day and night, primarily to protect division rear areas. FY90 will see a full scale production buy of 122 PMS fire units, with 132 more in FY91.

☐*FAAD Command, Control, and Intelligence (FAAD C2I)* integrates the various weapon system components with automated data processing for targeting, air situation, and air battle management information. It consists of four separate but interrelated efforts: Command and Control Hardware and Software, Ground Based Sensors, Masked Target, and Identification and Communications equipment. An NDI proposal for the Ground Based Sensor is now under evaluation, and the program will begin testing in 1990.

☐*Combined Arms Initiatives (CAI)* provide ground and air combat elements additional capabilities for self-defense against enemy helicopters. These include Air-to-Air Stinger on the OH-58C/D, improved air defense sights on the Bradley Fighting Vehicle, and improved tank ammunition to provide an anti-helicopter capability.

The BFV's 25mm cannon can be an effective air defense weapon.

STINGER REPROGRAMMABLE MICROPROCESSOR (RMP)

Stinger RMP is a shoulder fired infrared homing missile system whose mission is to give short range air defense coverage to specific units or sites. Deliveries of basic Stinger and Stinger Passive Optical Seeker Technique (Stinger POST), which improves performance against infrared countermeasures, were completed in 1987. Deployment of the RMP missile, which allows the seeker to be reprogrammed against countermeasures as they are identified, is scheduled to begin in 3rd Quarter FY89. Additional applications include both the PMS and the Air-To-Air Launcher scheduled for selected helicopters under the Combined Arms Initiatives.

TOW 2

The TOW missile has been the Army's primary heavy antitank weapon since 1968, and continues to be improved to meet evolving armor threats. The TOW 2A was fielded in 1987; it will be followed by the TOW 2B, a top attack version currently under development. Continuing improvements to the system will increase both lethality and survivability.

ADVANCED ANTITANK WEAPON SYSTEM - MEDIUM (AAWS-M)

AAWS-M will replace Dragon, the Army's current medium antitank system. It will provide the dismounted infantryman with a modern manportable tank-killing capability, as well as improved survivability, range, and countermeasures. In particular, AAWS-M will dramatically improve the antiarmor capabilities of our dismounted forces. The program will move into full scale engineering development in the 3rd quarter FY89.

The AAWS-M will replace this Dragon as our primary dismounted medium antitank system.

LINE OF SIGHT ANTITANK (LOSAT)

The LOSAT program will develop a weapon that will defeat modern Soviet armor already in the field as well as advanced armor still under development. The Kinetic Energy Missile, entering full scale development in FY90, will become the principal tank-killer available to the infantry in the mid-1990s.

M119 105MM HOWITZER

The M119 lightweight 105mm howitzer is a British designed light gun that will provide significantly improved range and reliability for light divisions as we begin initial fielding in 1989. Initial production will take place in the United Kingdom, but in FY90 production will move to the U.S. arsenal system. The Army intends to purchase a total of 548 weapons.

HOWITZER IMPROVEMENT PROGRAM (HIP)

When fielded in FY91, the M109 HIP will offer significantly better survivability than its predecessor with improved responsiveness and reliability. Most importantly, the on-board fire control system and positioning/navigation system will allow each gun to operate independently. The program begins low rate initial production with 19 modification kits during FY89, 40 additional kits in FY90, and 163 kits in FY91.

120MM MORTAR

The 120mm mortar will replace the World War II vintage 4.2-inch mortar in heavy divisions beginning with a fielding of the towed variant with NDI ammunition in FY90. This replacement will offer a larger projectile, improved range, and interoperability with more of our NATO partners. The 120mm mortar program includes initial development and fielding of enhanced high explosive and smoke ammunition. Planned purchases for FY90/91 are 167 mortars and 188 mortars respectively.

SENSE AND DESTROY ARMOR (SADARM)

SADARM is a sensor fuzed artillery submunition designed for employment against stationary, lightly armored vehicles. It is particularly effective against artillery units. It may be delivered to the target area by 155mm artillery projectiles or the MLRS. Once over the target area, the submunition is dispensed and, upon detecting a target, fires an explosively formed penetrator. SADARM is presently in full scale development; both 155mm and MLRS testing will take place in FY90.

CHEMICAL WARFARE DEFENSE

The threat of chemical and/or biological warfare is pervasive, growing, and rapidly changing in character. Developing countries view chemicals as cheap and effective weapons that may be used without any meaningful international sanctions. The Soviet Union continues to take advantage of advances in biotechnology and genetic engineering which could pose major challenges to our defensive capabilities. The United States must maintain effective defensive and credible retaliatory capabilities to deter the use of chemical and/or biological agents.

Soldiers conduct defensive training against chemical warfare at the NTC.

In FY90/91, the Army will continue to procure the Chemical Agent Monitor, the Lightweight Decontamination System, and the M40 Protective Mask. However, we still need detection, identification, and reconnaissance systems so our troops can avoid contamination and the subsequent requirement for protective clothing which degrades performance.

Chemical defense and retaliatory capability go hand-in-hand. Together they provide deterrence against the use of chemical weapons and, in the event deterrence fails, force the enemy to fight under the handicap of protective equipment. The new binary chemical modernization program ensures that we have a credible capability and also allows us to dispose of our outdated unitary stockpile.

M9 ARMORED COMBAT EARTH MOVER (ACE)

The M9 ACE provides front line earth moving support to combat forces. First fielded in 1986, the ACE has proven adept at handling all major battlefield engineer missions: mobility, counter-mobility, and survivability. It swims, is air transportable, and travels at 30 mph on roads. This mobility, coupled with its ability to rapidly construct fighting positions and obstacles, makes it an important combat multiplier for field commanders. In FY90 the Army will buy 132 M9 ACEs, and an additional 132 vehicles in FY91.

4. DEEP OPERATIONS SYSTEMS

MULTIPLE LAUNCH ROCKET SYSTEM (MLRS)

MLRS is a free flight, multiple launch rocket system with a dual purpose improved conventional munitions warhead. The MLRS includes the M270 self-propelled tracked launcher that carries 12 rockets in two easily replaced launch containers.

☐*MLRS* is currently in full rate production. System growth is planned by adding the Terminal Guidance Warhead, a chemical warhead, Search and Destroy Armor, and the Army Tactical Missile System. Multiyear procurement will provide 24,000 rockets each year for FY90/91. European production of MLRS launchers and rockets is scheduled to begin in 1989.

☐*MLRS Terminal Guidance Warhead (MLRS-TGW)* is a conventional MLRS rocket with three antiarmor Terminally Guided Submunitions (TGSM) in each rocket. Each TGSM can locate and destroy an armored vehicle using its millimeter wave seeker and tandem shaped charge warhead. MLRS-TGW is an international development program with France, Germany, and the United Kingdom. The program begins full scale development in FY92.

ARMY TACTICAL MISSILE SYSTEM (ATACMS)

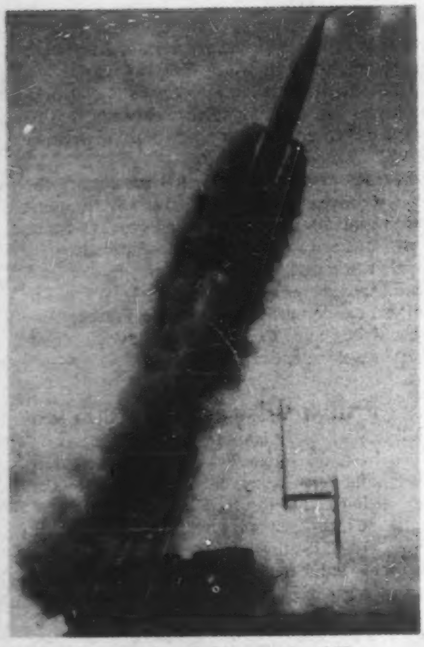
ATACMS is a conventional semi-ballistic missile launched from the standard MLRS launcher. It is designed to interdict, delay, disrupt, and destroy the second echelon assault forces, command and control elements, and logistic support units. Each launcher can carry two ATACMS missiles with approximately 1,000 antipersonnel/antimateriel bomblets. Low rate initial production began in FY89. The FY90 program will initiate full rate production of 276 missiles, rising to 452 missiles in FY91.

NONSTRATEGIC NUCLEAR FORCES

Modernization of Army nuclear weapon systems, specifically the deployment and fielding of a Follow On To Lance (FOTL) and the modernization program of Artillery-Fired Atomic Projectiles (AFAPS), is essential to support the national military strategy and maintain the credibility of the NATO triad of forces called for by NATO strategy.

A FOTL with increased range and survivability, and modern nuclear safety technology is a long standing requirement to replace the aging Lance. The FOTL will support joint Army-Air Force doctrine and NATO war plans. Its improved capabilities will reinforce deterrence by holding threat forces at risk well beyond friendly lines.

Modernized AFAPs offer significant advantages over their predecessors in range, response time, target effect, accuracy, safety features, command and control, and security. Modern AFAPs have already been developed, but the FY85 DOD Authorization Act limited production and imposed an overall funding cap. Total requirements for modern AFAPs established by the JCS and NATO and repeatedly emphasized by the Supreme Allied Commander, Europe, ex-



The Lance is nearing the end of its programmed life.

ceed this limit. As a result, we are forced to hold older, less effective AFAPs in our inventory.

Both the FOTL and the AFAP programs require congressional support before we can significantly improve our position. Over time, failure to support these programs will amount to a unilateral reduction of our short range nuclear forces while the Soviets can continue their modernization at will.

JOINT SURVEILLANCE AND TARGET ATTACK RADAR SYSTEM (JSTARS)

JSTARS is a battle management and attack control system which will be able to detect, track, classify, and assist in attacking both moving and stationary targets more than 100km deep into the enemy's force array. The Army is developing the Ground Station Module (GSM) while the Air Force develops the airborne platform, radar, and data link. The GSM will process radar data from both the planned JSTARS and the existing Mohawk surveillance aircraft. The GSM program will develop and incorporate hardening and nuclear, biological, and chemical (NBC) filtering into a Block II GSM improvement. A European field demonstration with the fully operational GSM and a full scale development platform radar is planned for early 1992.

INTELLIGENCE - ELECTRONIC WARFARE (IEW):

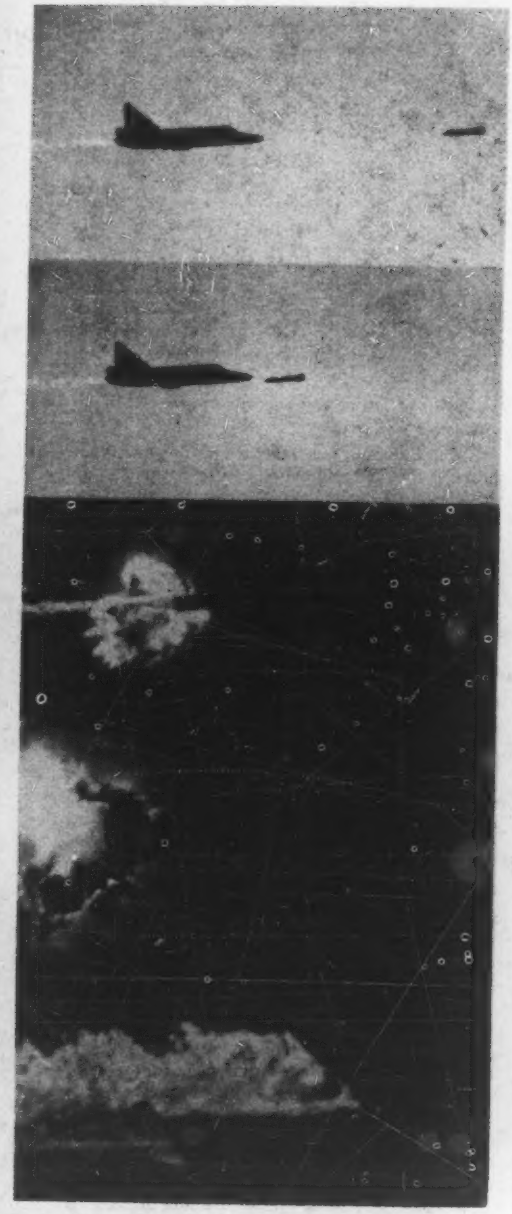
IEW systems are developed to support combat operations across the entire spectrum of conflict, but many of them are particularly useful in support of deep operations. They locate, identify, exploit, deceive, disrupt, degrade, or destroy enemy capabilities on the battlefield. The Army is continuously fielding new ground and airborne systems to accomplish these tasks. In FY90 fielding will continue for the intercept/direction finding Trailblazer, and the TRAFFIC-JAM and TACJAM tactical jammers. The Guardrail/Common Sensor, an airborne collection system, will begin to enter the inventory in early 1991. Efforts to develop and field an Unmanned Aerial Vehicle and the All Source Analysis System also continue.

SPECIAL OPERATIONS SYSTEMS

☐The *Special Operations Aviation (SOA) program* will develop and procure sophisticated helicopters capable of deep penetration missions that require infiltrating and exfiltrating special forces at low levels through unfamiliar terrain, at night and in bad weather. One prototype and 50 production MH-47E helicopters (modified CH-47D Chinooks), as well as one prototype and 22 production MH-60Ks (modified UH-60A Black Hawks) will be procured. To ensure our SOA pilots are adequately trained, a combat mission simulator for each type of aircraft will be developed. Significant features of the aircraft are a fully integrated cockpit common to both type aircraft; more powerful engines; forward looking infrared sensors; terrain following/terrain avoidance radar; and extended range with new internal/external fuel tanks and air-to-air refueling capability. In FY90, 11 MH-47Es and 11 MH-60s will begin the modification process; 24 more Chinooks and 11 additional Black Hawks will follow in FY91.

☐To perform SOF direct action and deep reconnaissance missions in desert and arid environments, the *Desert Mobility Vehicle System* will modify High Mobility Multipurpose Wheeled Vehicles (HMMWV) beginning in FY90.

☐In accordance with requests by the CINC of Special Operations Command, the Army continues to give *SOF Communications* a high priority. The SOF Communications program upgrades present SOF capabilities, replaces obsolete equipment, and applies new technological advancements for AC and RC SOF. These communications systems support SOF missions that require low probability of intercept and detection in a lightweight, manportable, secure, and reliable package.



Patriot is fast, reliable, accurate – and devastating.

5. REAR OPERATIONS SYSTEMS

PATRIOT

With its fast reaction time, reliable firepower, and ability to detect electronic countermeasures, the Patriot is the centerpiece of theater air defense. Nine Patriot battalions are currently operational with one additional battalion scheduled for fielding before the end of 1989. In FY90 the program will buy 3 firing units and 815 missiles. The Federal Republic of Germany, Netherlands, and Italy are participating in Patriot acquisition programs to provide for cooperative air defense improvements. The first NATO unit was delivered in 1986 and discussions continue with other interested NATO allies. Additionally, Japan has been licensed for the production of 26 fire units.

The Patriot system's Anti-Tactical Missile (ATM) capability provides the foundation for the active defense pillar of the Army's Tactical Missile Defense program. These missiles will be capable of defeating both aircraft and missiles in flight. An aggressive product improvement program will maintain Patriot's effectiveness well into the future. In FY90/91 more than 800 ATM capable missiles will be procured each year.

TACTICAL WHEELED VEHICLES

The Army will continue to upgrade its tactical wheeled vehicle fleet to improve supply support, heavy lift, unit mobility, and ammunition, fuel, and heavy equipment transport.

☐The *Light Fleet* will be augmented by a new competitive multiyear contract for approximately 39,000 HMMWVs to be awarded in late FY89.

☐In our *Family of Medium Tactical Vehicles (FMVT)* program the competitive research, development, test, and evaluation phase is now set for FY89. This vital truck program will provide an improved medium truck family using today's automotive technology to replace aging 2-1/2 ton trucks and fill critical shortages of 5-ton trucks.

☐*Heavy Fleet* modernization includes the Palletized Loading System (PLS), a 16.5 ton tractor with companion trailer and self-load/unload capability that will enter production in FY90. Fielding of PLS will provide immediate increases in corps ammunition distribution productivity and efficiency. We also expect to begin fielding of the Heavy Equipment Transporter semitrailer in late FY90. It will be able to carry the M1 series tank.

A Black Hawk displacing an artillery piece

UH-60 BLACK HAWK:

The Black Hawk is the Army's primary tactical lift helicopter, capable of moving a combat-equipped squad of 11 soldiers, or lifting 8,000 pounds of cargo. More than 900 Black Hawks have been delivered to the Army worldwide. A more powerful engine will be added starting in 1989. In addition, a multi-stage improvement program includes a composite rotor system, an improved visibility cockpit, an integrated avionics system, crashworthiness and crew survivability improvements, and numerous reliability, availability, and maintainability improvements. The FY90/91 budget provides for 72 additional aircraft each year.

DEPLOYABLE MEDICAL SYSTEMS (DEPMEDS)

DEPMEDS consists of standardized modular groupings that can be configured into hospitals for use anywhere in a wartime theater of operations. Various types of hospitals can be created by mixing the standard modules (e.g., operating rooms, laboratory, X-ray, wards) that incorporate the latest in medical technology. The system includes both the medical and non-medical associated items of support equipment required for each type of hospital. A total of 156 hospital sets are scheduled to be fielded by 1996 to AC and RC units.

This Chinook is moving a pre-assembled bridge.

CH-47D CHINOOK:

The Chinook, our only medium lift helicopter, provides for the rapid delivery of troops and equipment behind the front lines. Currently in its ninth year of production, the CH-47D has achieved a mission availability rate five percent above the Army's standard. Planned production has been increased from 436 to 472 aircraft, with completion scheduled for 1992. The improvements incorporated into the Chinook will extend the useful life of the fleet beyond the year 2000.

6. MILITARY ENGINEERING

As an integral component of the combined arms team, engineering units conduct a wide variety of combat, combat support, and combat service support missions across the entire range of potential conflicts. Modernization efforts within the functional areas of mobility, countermobility, survivability, sustainment, and topographic engineering must parallel the modernization of other elements in the deep, close, and rear battle areas if our AirLand Battle doctrine is to be properly executed.

COUNTERMINE OPERATIONS

An effective countermine capability is key to maneuver and thus a basic requirement for execution of AirLand Battle doctrine, but the Army's countermine capability remains inadequate. Some efforts to address this problem are beginning to bear fruit. The Mine Clearing Line Charge is being fielded. The Battalion Countermine Set (Rollers, Plows, and Cleared Lane Markers) and a new hand held mine detector are in procurement and are scheduled for fielding in FY89.

These systems will help field commanders, but by themselves are not enough to restore unit mobility on the battlefield.

The Army's Countermine Master Plan covering the doctrine, concepts, materiel, and technical base requirements will, if adequately funded, provide a minimum essential countermine capability for the Army in the near future. The plan incorporates:

☐Technology base development of both close-in and stand-off detection systems;

☐Heavy and light breaching systems including smart mine neutralization, and improved dispersed explosives;

☐Clearing systems involving the use of mechanical and energy clearers; and

☐Protective measures for both individuals and equipment.

These systems will give Army commanders the critically needed capabilities to defeat the full spectrum of mine threats. Without these capabilities, the Army's ability to maneuver on the evolving battlefield will be severely restricted.

BRIDGING

The increasing weight of tanks and other modern systems, some now weighing as much as 70 tons, increases the Army's heavy force bridging requirements. The current tactical assault bridge is designed for a military load classification (MLC) of 60 tons, an insufficient capacity for today's heavy forces. Additionally, the standard bridge is too short (18 meters) and too slow; mounted on a M60 or M48 tank chassis, it cannot keep up with the M1 fleet.

The follow-on system, the Heavy Assault Bridge (HAB), is currently in advanced development. The HAB will be MLC 70, 26 to 32 meters long, and mounted on the Abrams chassis. Procurement is being delayed by funding constraints. Fielding is not expected to begin until FY94.

SUSTAINMENT ENGINEERING

The Army's ability to project a global presence depends on rapid development of austere forward operational bases in a variety of locations. Rapid construction of minimum essential facilities and rapid restoration of war damaged facilities will be critical to our sustainment effort in wartime. Additionally, tactical maneuver requires rapidly developed and continuously maintained ground, sea, and air lines of communication to sustain operations. Methods of construction and repair necessary to perform these tasks are slow and labor intensive. The fielding of a new 600 foot well drill for support to water supply operations and R&D efforts in the areas of rapid setting concrete and soil stabilization promise improvements, but our present capability to clear routes, and repair, maintain, or upgrade support facilities remains inadequate.

TOPOGRAPHIC ENGINEERING

Revolutionary advances in topographic engineering will soon offer commanders timely information on changes to the terrain and their effects upon operations. Traditional maps are being replaced by electronically displayed maps built with digitized terrain data bases adjusted by current data from battlefield sensors. The Digital Topographic Support System (DTSS), on track for fielding in the 1990s, will provide new map displays essential for intelligence preparation of the battlefield and for use by operations, logistics, and engineer planners throughout the Army. The Quick Response Multi-Color Printer will complement DTSS with a capability to produce paper copies of the electronic displays rapidly. The Defense Mapping Agency's multi-billion dollar development of a worldwide tactical-terrain digitized data base will complete the revolutionary change from paper to computers.

The Heavy Assault Bridge will be both longer and stronger than the current tactical assault bridge pictured here.

7. COMMAND AND CONTROL

The modernization effort for communications systems and command and control systems is guided by the Army Command and Control Master Plan (AC2MP). This plan coordinates the development and fielding of the individual communications and automation systems that provide commanders at all levels with vital information and allow them to direct and maintain their forces effectively. Two major components of the Master Plan are discussed below.

THE ARMY TACTICAL COMMAND AND CONTROL SYSTEM (ACCS)

The Army Tactical Command and Control System (ATCCS) is the battlefield portion of ACCS. This system provides the battlefield commander and his staff with near real-time information through the exploitation of advanced automation and communications technology. ATCCS consists of five interdependent automation systems, one for each of the five battlefield functional areas: maneuver control; air defense; fire support; intelligence/electronic warfare; and combat service support. These five systems use common hardware and, where appropriate, common software. Common to these functional systems are the communications systems that actually transmit information across the battlefield.

Communications systems now being fielded that offer significant new capabilities include:

☐*Single Channel Ground and Airborne Radio System*, the frequency-hopping, secure voice radio used by all the services for tactical communications;

☐*Army Data Distribution System*, a system of radios to carry data generated by battlefield sensors to intelligence analysts and tactical commanders; and

☐*Mobile Subscriber Equipment (MSE)*, the area communications system serving all communications needs in the division and corps area. Each MSE set is uniquely designed for the tactical and geographic needs of the user. The common components (switches, mobile receiver, vans, etc) will be distributed to cover an entire sector of responsibility without offering the high visibility consolidated targets inherent in previous systems.

Each of these systems provides a quantum leap in speed, survivability, and security over existing communications systems.

DEFENSE SATELLITE COMMUNICATIONS SYSTEM

In the strategic arena, upgrades in communications capabilities through the Defense Satellite Communications System are continuing. As the executive agent for ground links, the Army continues to execute its responsibilities as an active partner in this vital worldwide satellite system by developing, procuring, maintaining, training, and providing logistics support for the ground satellite terminals, control systems, and related communications subsytems. FY90/91 resources will improve our earth terminals around the world through additional site preparation and procurement and installation of key components.

TACTICAL COMMUNICATIONS UNIT SET PROCUREMENT

	SINCGARS	MSE	ADDS
FY 89	5 DIV	8 DIV 4 CORPS	1 DIV 1 TRAINING
FY 90	4 DIV	7 DIV 4 CORPS	1 DIV
FY 91	6 DIV	3 DIV	2 DIV
TOTAL PROCUREMENT OBJECTIVE	27 DIV	28 DIV 10 CORPS 2 TRAINING	10 DIV

8. SPECIAL RC MODERNIZATION ISSUES

The ARNG and USAR play pivotal roles in Army warfighting plans and capabilities. Our modernization strategy encompasses all components by modernizing first to fight, forward deployed, and early deploying units with new systems, and providing later deploying units with the refurbished displaced systems. This strategy ensures that RC improvements parallel and complement corresponding AC forces.

MAJOR USAR INITIATIVES

Force modernization continues to bring more new aircraft to the Army Reserve. UH-60 Black Hawk helicopter distribution to existing USAR units will be almost completed in FY90. The current Army Aviation Modernization Plan provides for additional Black Hawk aircraft as USAR aviation units convert from the UH-1H. The addition of these aircraft will significantly increase the flexibility of Army Reserve aviation.

Beginning in FY88, the 6th Infantry Division roundout brigade (205th Inf Bde (Light), USAR) began reorganizing in accordance with the new light design. Reorganizations and activations for other portions of the brigade continue through FY90 with additional equipment planned for brigade headquarters, infantry, field artillery, engineer, and aviation battalions. This will modernize the roundout brigade at the same pace as the active forces in the 6th Infantry Division.

Other USAR modernization efforts include fielding numerous state-of-the-art items of test, measurement, and diagnostic equipment, and wheeled and tracked vehicles such as the HMMWV, Small Unit Support Vehicle, and M939-series 5-ton trucks. Additional weapon systems include the 9mm pistol, Position Azimuth Determining System, and Mortar Ballistic Computer. Distribution of improved versions of existing howitzers, TOW-2 missiles, and aircraft will continue. Of equal importance is the delivery schedule for new equipment. Early deploying RC units can now expect to enter combat with the same modern systems as their AC counterparts.

MAJOR ARNG INITIATIVES

Under the Army Aviation Modernization Plan, aging ARNG aircraft will be either upgraded or replaced. The plan eliminates older aircraft systems such as the CH-54 heavy lift helicopter and the UH-1M used as an attack helicopter substitute. In addition, the plan provides for 15 AH-64 Apache advanced attack helicopter battalions in the ARNG and, by refocusing the Light Helicopter Experimental program, equips ARNG units early on in the fielding cycle.

A product improvement program is now underway to improve the ARNG's out-dated 2 1/2-ton and 5-ton gasoline powered truck fleet. This initiative, designed to upgrade the readiness and supportability of the ARNG tactical wheeled vehicle fleet, began the process of repowering 300 gasoline powered medium trucks with multifuel engines in FY88. The program will continue into FY89 and FY90 to modernize more than 1,025 of the oldest medium trucks in the ARNG inventory. Future ARNG requirements are being considered in the planned Army Medium Truck Fleet Modernization program.

Through an accelerated modernization effort the ARNG will be totally equipped with Abrams and M60A3 Tank Thermal Sight (TTS) tanks by the end of FY91. In FY86 the Army began to field large numbers of M60A3 TTS tanks in ARNG non-roundout units. Coupled with the concurrent fielding of Abrams to roundout units, these two initiatives will result in the elimination of the M48A5 and M60/M60A1 models during FY91. The fielding of Abrams will be extended to six additional battalions in non-roundout units in FY90. Depending on the funds available, continued Abrams acquisition through the 1990s may displace enough M1 Abrams to totally fill the RC with Abrams tanks by the year 2000. No further improvements are anticipated for the M60A3 fleet.

The HMMWV: one item purchased by DPP.

DEDICATED PROCUREMENT PROGRAM (DPP)

In the past, the readiness ratings of otherwise well prepared units were frequently reduced because a relatively few specific items of equipment were not on hand. Similarly, the absence of a few key systems sometimes prevented RC units from reaching their full training potential. The DPP provides for the purchase of specific items of equipment needed to satisfy readiness training requirements in RC units.

Since 1981, more than 4,000 tactical wheel vehicles, 6,424 electronic systems, 260 combat vehicles, and 5,517 other items of support equipment have been purchased for USAR units. Dedicated procurement has helped to raise the Equipment on Hand (EOH) status in 226 USAR units. Additionally, the readiness ratings of 178 units have been raised through this program, and 870 more units received specific items of equipment to improve their local training. Out of 394 types of equipment included under DPP, 131 have been distributed in full. By cross-leveling equipment within units in conjunction with the DPP, the RC have increased 478 units to the minimum acceptable level of EOH since 1986.

In FY90/91 DPP will continue to improve the readiness posture of the RC by providing essential equipment for training and mission accomplishment. Specific equipment to be distributed includes:

☐High Mobility Multipurpose Wheeled Vehicles (HMMWV);
☐M939 Series 5-ton trucks;
☐T-9 dozers;
☐Improved TOW vehicles;
☐Night vision devices;
☐7 1/2 ton cranes;
☐AN/VDR-2 radiacmeters; and
☐Tactical Army CSS Computer System (TACCS).

9. FACILITIES

Excellent facilities are directly linked to soldier and Army civilian morale, productivity, retention and, ultimately, warfighting readiness. But maintaining and modernizing the Army's aging infrastructure is a difficult challenge in an era of scarce resources. Army goals for facilities support include:

☐Fully funding annual recurring requirements for real property maintenance;

☐Containing further growth in the Backlog of Maintenance and Repair (BMAR);

☐Investing at a stable level for revitalization construction; and

☐Funding facilities required by new missions.

The strategy for achieving these goals incorporates a three pronged approach under the Army Communities of Excellence program: prudent stewardship; innovative business practices; and balanced investment. Discussion of the primary programs the Army uses to execute its facilities strategy follows.

MILITARY CONSTRUCTION, ARMY (MCA)

Over the past decade, extensive construction of facilities in support of new unit stationing and the fielding of modern weapon systems has dramatically improved the readiness posture of our forces both at home and overseas. Many of these improvements were long overdue. Construction of modern barracks and dining facilities, tactical equipment shops, hardstands, training ranges, and other academic and support facilities have improved the morale, training, and readiness posture of our fighting forces in the field. These initiatives together with the construction of child development centers, chapels, and other community support facilities, have greatly contributed to providing today's soldiers and their families with the quality living and working environment they deserve.

Recent budget reductions have hit this area very hard. The FY90/91 budget submission represents the lowest MCA program level since 1981, continuing a downward trend in MCA funding that began in FY87. The reductions resulted from conscious decisions to fund the operation and maintenance of existing facilities before beginning new programs. The FY90/91 budget does provide support to force structure and equipment modernization initiatives, to include new SOF facilities, aviation fielding and restationing in Europe, and construction in Korea. The MCA funding level is, however, insufficient to support adequately the revitalization of the existing facilities base, and if the downward trend continues, readiness will be adversely affected. Quality of Life construction continues, but at such a reduced level that the buyout of substandard barracks and child development centers, scheduled for FY92, will now slip to FY94. The targeted buyouts for replacement of other Quality of Life facilities will experience similar delays.

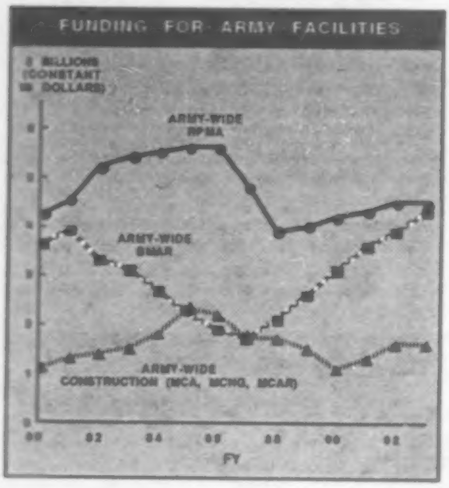
REVITALIZATION

Revitalization is the cyclical renovation or replacement of the Army's real property facilities with the goal of saving resources by minimizing obsolete facilities. It is a key component in the Army's facilities strategy and can best be achieved by balancing ade-

MERRELL BARRACKS
MERRELL BARRACKS

Before and after: Merrell Barracks, Nuernberg, West Germany. Soldier morale and efficiency are directly affected by facilities revitalization.

quate annual funding for maintenance and repair (RPMA) with a stable, prudent level of investment in renewal of aging Army facilities. We are striving to forge an adequate, consistent base for revitalization construction from available resources, but current RPMA and MCA funding levels are simply inadequate. Delaying this inevitable investment will lead to further infrastructure decay and require more costly maintenance and repair in future years.



FACILITIES PROGRAM TRENDS

The decline in available resources presents major challenges in meeting the goals of our facilities program. As facilities age, their day-to-day maintenance and repair needs increase; if this work is deferred, further deterioration and an increase in the maintenance costs follows. Underfunding revitalization construction (primarily MCA) and RPMA leads to growth in maintenance backlog (BMAR). Catch up becomes increasingly difficult because new RPMA requirements continue to emerge as the force modernizes.

These requirements include specific programs to protect and enhance the environment, eliminate pollution, meet safety and health standards, conserve energy, and preserve historical assets. BMAR will only begin to decline when we receive stable, adequate resource levels for maintenance and repair coupled with steady funding for revitalization construction.

10. TESTING, EVALUATION AND INSTRUMENTATION

Instrumentation is our best means to acquire test data; it is the key to measuring how well new systems work and identifying those which are potentially unsuitable before production begins. For many years, supporting instrumentation, targets, and threat simulators have lacked the sophistication of our newest combat systems. In recognition of this fact, more than $109 million have been allocated over the next five years to improve the Army's test and evaluation capabilities. In conjunction with the Army and other services, DOD is implementing a Test and Evaluation Capabilities Improvement Program. Management of test resources and policy at DA level has been centralized in the Test and Evaluation Management Agency. These actions will produce DA and DOD level focal points and unified guidance for instrumentation investments.

Only prudent investment in the renewal of aging Army facilities will prevent higher future costs.

G. Sustainment

Sustainment refers to the ability to maintain the level and duration of combat activities required to achieve national objectives. Adequate sustainment requires organic support forces, prepositioned equipment, war reserves, transportation capabilities, and a firm industrial base. Without adequate sustainment, the warfighting CINCs cannot accomplish their wartime missions. Weakness in logistics can be devastating to deterrence. It is a highly visible reflection of inadequate means and irresolute will.

The true significance of sustainment is clear when viewed against the backdrop of NATO's broad conventional defense requirements. Should NATO's logistical reinforcements -- the additional soldiers, spare parts, ammunition, and other items required for combat -- fail to arrive for any reason, the alternatives facing the Alliance might well be nuclear escalation or defeat.

The U.S. Army has made great progress in sustainment over the last eight years, but continued investment is essential, especially for the industrial capacity to produce those war fighting systems that will have the greatest payoff on the battlefield.

1. SUPPORT TO CINCs

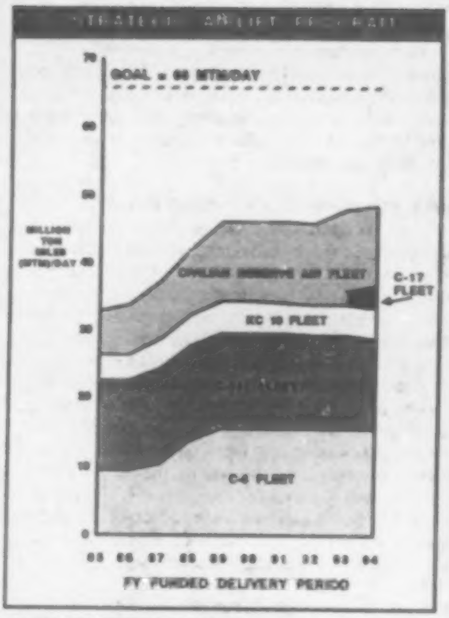
WORLDWIDE MOBILITY

Adequate global airlift and sealift are critical to deterrence because they deliver Army forces where and when they are required to meet the threat. However, current and anticipated air and sea transport capabilities fall far short of our Nation's needs.

Worldwide airlift is most crucial in the early days of a crisis. If fully funded through FY94, this program will produce approximately 53 million ton miles per day (MTM/D) of capability against a DOD goal of 66 MTM/D. The shortfall would be significantly reduced by fielding the C-17 Airlifter which is expected to achieve an initial operating capability in September 1992. This aircraft will provide outsized airlift and reduce the intratheater airlift shortfall.

Strategic sealift is required for 95 percent of our force deployment and resupply. The sealift assets available to meet lift requirements early in a crisis must come from ships of the Military Sealift Command, Ready Reserve Fleet, U.S. controlled ships, available allied ships and, most significantly, the U.S. flag merchant fleet. As the President's Commission on Mer-

Deterrence requires trained and ready ground forces with adequate global airlift and sealift.

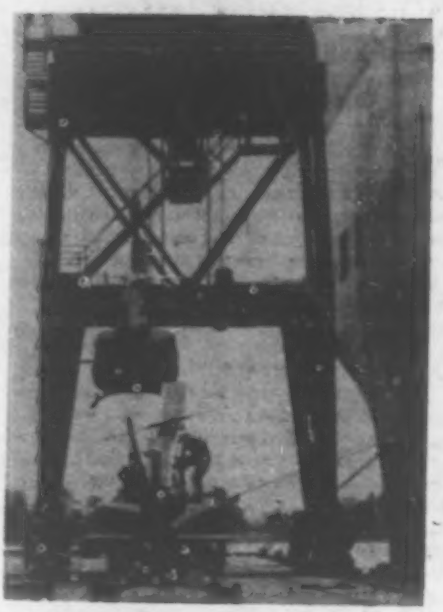


chant Marine and Defense has warned, current U.S. unit equipment and resupply sealift capability are inadequate to meet our wartime requirements. Projections show that this problem will steadily worsen into the next century.

The Navy is completing several programs to add sealift capability (such as converting commercial container ships to carry seasheds and flatracks), but the major concern remains the continued decline in U.S. Merchant Marine sealift assets and manpower. Recommendations ranging from procurements to operating subsidiaries are being considered as part of the U.S. National Sealift Policy review. One of the most effective means of increasing U.S. sealift capability is the continued development of a Surface Effect Fast Sealift program to provide ships capable of carrying approximately 5,000 short tons of cargo at a speed of 55 knots into virtually any port in the world. Such ships would allow the rapid projection of ground combat power that our national military strategy requires.

Meanwhile, the Army continues to build cargo offload capabilities to meet its worldwide requirements. These efforts include the procurement of new landing craft, causeway systems, and heavy lift air-cushioned amphibians.

Continued development and support of worldwide mobility programs are essential to meet our global commitments.



Ninety-five percent of Army combat forces and supplies must be transported overseas by ship.

WAR RESERVE STOCKS

The Army establishes and maintains war reserve stocks in strategic locations worldwide to provide warfighting CINCs an immediate supply of ammunition, major end items, fuel, and secondary items during the initial days of combat until the supply pipeline can be filled from CONUS. Although war reserve stockpiles have grown an average of 50 percent during the last eight years, funding constraints coupled with a growth in requirements have prevented the Army from meeting its war reserve goals.

PREPOSITIONING OF MATERIEL CONFIGURED TO UNIT SETS (POMCUS)

POMCUS allows us to store equipment forward in Europe in company and battalion sized packages, so that in time of crisis only unit personnel with minimum equipment will require airlift. During the REFORGER 88 exercise, 3,024 vehicles, (2,115 wheeled and 909 tracked) were drawn from POMCUS. More than 99 percent were operational upon issue, clear evidence of an efficient POMCUS program. Since its beginning in 1961, POMCUS stocks have risen to nearly six division sets of equipment. POMCUS sets have been modernized along with the CONUS units they may support and now contain M1A1 tanks, Bradley Fighting Vehicles, and MLRS. The warm basing of general hospital equipment at sites where it will be used was initiated in FY87, and Deployable Medical Systems (DEPMEDS) were first issued to POMCUS in FY88.

The POMCUS program is critical to our ability to project heavy forces rapidly in response to a crisis. POMCUS sites save resources in the long run by allowing stateside units to serve as short notice reinforcements. Continued congressional support of this strategic mobility program is essential to deterrence of war in Europe and to fulfill the U.S. commitment to NATO to provide 10 divisions within 10 days of mobilization.

WARM BASE HOSPITALS

The United States Army, Europe Warm Base Program provides a rapid method of rendering wartime general hospitals fully operational. It provides for storage of 1,000 bed general hospital medical equipment sets in a partially established mode at the intended site of wartime use. As a minimum, the hospital core (operating rooms, laboratory, central materiel supply, radiology, and 100 intensive care beds) are established in a "ready for war" configuration. The remaining 900 beds and associated equipment are stored contiguously. Thus, a RC general hospital unit could begin receiving patients within hours of activation and could reach full capability in ten days or less. The program objective is to warm base six general hospitals, representing 6,000 beds, by 1994. The first warm base opened in the Netherlands in June 1987, and the second in the United Kingdom in August 1987. Additional warm bases are planned in Belgium, the Netherlands and the United Kingdom.

WARTIME HOST NATION SUPPORT (WHNS)

In return for U.S. force commitments, the Federal Republic of Germany provides approximately 50,000 German Army reservists and civilians for logistics support to the U.S. Army, Europe in crisis and in war. German reservists are organized into 100 security and combat support/combat service support units, which operate from 83 installations. These units provide the support for essential U.S. rapid reinforcement and resupply. In fact, U.S. combat forces cannot be adequately supported without these WHNS units and their related infrastructure. This support equates to 206 units (35,000 spaces) in U.S. force structure savings.

The U.S. Army funds some German unit equipment and supplies and bears annual costs for civilian pay, operations, and maintenance of the 83 installations. Germany funds military personnel costs, prefinances infrastructure ($255 million), and mobilizes much of the required unit equipment from its civil sector at an annual U.S. savings of $578 million.

German support is proceeding as planned. All 100 units will be activated by the end of 1989. However, because of funding constraints, we expect some U.S. commitments to slip past the accepted bilateral target dates. Continued U.S. funding is needed to make these units fully operational by FY93.

BULK PETROLEUM DISTRIBUTION

The Army has the responsibility to support warfighting CINCs by providing overland distribution of fuel to all land-based forces. For the past several years, the Army has been implementing a comprehensive strategy to improve its petroleum distribution capability through state-of-the-art tactical systems. The most critical of these systems is the Inland Petroleum Distribution System (IPDS) which provides tactical pipeline as well as associated storage and pumping equipment. IPDS connects to and is supported by the Navy's Offshore Petroleum Discharge System for delivery of fuel to the theater. By the end of FY89, approximately 42 percent of the CINCs' IPDS requirements will be on hand or under contract. FY90/91 funding will provide for continued expansion of our inland petroleum distribution capability.

TACTICAL WATER SUPPORT

The Army is charged with providing water for all land-based forces. The components most critical to accomplishing this mission are the tactical water purification units. New reverse osmosis technology provides these units with the capability to purify water from almost any source, including salt and brackish water and water contaminated with NBC agents. This represents a major improvement over older purification units which could purify only fresh water. New purification units are being procured for Army divisions, as are three special large volume units for use in ports or inland waterways. A third type of unit designed to support Army echelons above division is in the first stage of procurement. FY90/91 funding will provide for continued procurement of water purification units and associated equipment to support contingency and AirLand Battle requirements.

ADEQUATE SUSTAINMENT IS KEY TO OUR WARTIME MISSION

2. LOGISTICS PROGRAMS

The Army today supports forces worldwide with a degree of efficiency that matches or exceeds comparable programs in industry. The initiatives that follow illustrate major logistics programs that are helping the Army maintain excellence in supply distribution or are critical for increasing efficiency.

DEPOT MAINTENANCE PROGRAM

Representing an investment of more that $2.5 billion dollars annually,-the Army depot maintenance program consists of:

☐*Material Maintenance* ($1.9 billion in FY90 and $2.1 billion in FY91) which entails the overhaul, modification, and repair of unserviceable end items (aircraft, vehicles, etc.) and secondary items (engines, transmissions, etc.);

☐*Maintenance Support Activities* ($.7 billion in both FY90 and FY91) which provides maintenance engineering, new equipment training, sample data collection, publications, and technical assistance to field units.

Depot maintenance may be conducted in Army depots ($1.1 billion in both FY90 and FY91) or by civilian contract ($.8/$1 billion in FY90/91). Requirements continue to grow as new and more technologically sophisticated equipment is added to the inventory. These requirements cannot be satisfied in any other way; if under funded in one year, they become part of the following year's requirements. The backlog of unfunded depot maintenance requirements has grown from $141 million in FY87 to an anticipated $584 million in FY91.

Because of budget constraints, the Materiel Maintenance program can be funded at only 79 percent of Army requirements in FY90 and 78 percent in FY91. Within this limit, near term readiness will be given the highest priority with funding for secondary items set above the 90 percent level in both years. This means that shortfall and risk are being accepted in the repair/modification of end items. In the long run, the burden of maintaining an inventory of equipment in need of overhaul will fall on field units.

The burden of deferred maintenance falls on field units.

TRANSPORTATION PROGRAM

The Army's transportation program supports all aspects of Army and joint service operations around the world. Transportation requirements are driven by decisions made in other program areas such as training, procurement, modernization, and deployment, and must be constantly balanced against those programs. In FY90, the transportation program will provide for meeting approximately 96 percent of the Army's worldwide transportation requirements. Current Army transportation shortfalls for FY89/90/91 are estimated at $101/31/22 million respectively. Inadequate funding to meet Total Army requirements will adversely affect the CINCs' ability to meet their peacetime missions and sustain their warfighting forces.

A number of internal programs, such as the Guaranteed Traffic and DOD Air Shipment Challenge programs have already produced significant cost savings. In addition, initiatives such as freight consolidation centers and direct shipments from vendors to users will be evaluated for possible implementation in the next three to five years. In this way, inadequate funding levels can be partially offset and minimally adequate levels of service can be maintained.

INDUSTRIAL PREPAREDNESS

The industrial base is that part of the total government and privately owned industrial production capacity that manufactures, maintains, modifies, overhauls, and repairs military materiel to meet wartime needs. Peacetime management of these assets determines our wartime sustainability levels. FY90/91 investment in the industrial base funds safety upgrades totaling $39 million at Army owned ammunition plants.

However, maintenance of the laidaway base (inactive supply lines ready for activation) is underfunded by 45 percent with no significant improvements in mobilization readiness. This effectively eliminates surge capacity for ammunition. Funding levels provide for no maintenance and only limited security and fire protection. In particular, reductions in Procurement of Ammunition (PAA) continue to have a detrimental effect on the ability of the ammunition production base to respond to mobilization orders. PAA reductions of $269 million from FY89 to FY90 and an additional $193 million in FY91 further erode the am-

Continued underfunding threatens our surge capability for ammunition production.

munition production base.

Response times will continue to increase as the lack of maintenance allows further deterioration in these facilities. The end result is a steadily declining ability to mobilize the industrial base in the event of a national emergency. Our present industrial base would be able to meet only 60 percent of our wartime needs, even after three years of operations. Major deficiencies include plant capacity, rolling inventory, and spare parts.

SUPPLY PROGRAM

The Army Central Supply and Transportation Program provides for the day to day operation of major Army supply depots and materiel commodity commands. Major cutbacks preclude us from meeting all but the highest priority logistic support requirements within standards. Allocation of reduced resources to the basic functions of receipt and issue of supplies leaves our logistics support programs such as physical inventory and care of supplies in storage inadequately funded.

☐*Combat Authorized Stockage List (ASL) Prescribed Load List (PLL) Program:* The Combat ASL/PLL program was established to improve sustainability, mobility, and readiness of deployed and deployable forces. Evaluation indicates that a full combat ASL can significantly improve the readiness of a unit. For example, an assessment of the 1st Armored Division's ASL from 1986 to 1987 showed that during field exercises the combat ASL accommodated 84 percent of demands, while the incidence of systems rendered non-mission capable for parts was reduced by 27 percent. In FY90, USAREUR will have combat ASLs for 13 major weapon systems in place. Development for Korea will begin in FY90.

☐*Air Line of Communication (ALOC) - Distribution Effectiveness:* ALOC provides air delivery of routine priority medical materiel, equipment, repair parts, and maintenance related items to selected overseas Army combat service support units. The most significant impact of ALOC has been a reduction in the order-ship-time from approximately 61 days in 1975 to 27 days. ALOC delivers cargo to supply units in digestible increments. Speeding delivery reduces the size of the inventory which is always in the pipeline. Every day we can eliminate from the average delivery time saves $1.9 million worth of materiel in transit. Consequently, Army wholesale logisticians monitor ALOC order-ship-times intensively.

ALOC distribution has cut some delivery times by 50 percent.

LOGISTIC UNIT PRODUCTIVITY SYSTEMS (LUPS)

LUPS modify selected combat service support unit structures to increase productivity. By incorporating the latest technology, our capability to support the warfighting CINCs has actually increased while personnel structure has been reduced. Acquisition of LUPS equipment is about 50 percent complete. Unit conversions occur approximately two years after equipment acquisition to ensure units are fully ready at time of conversion. Key events in FY90/91 include:

☐Conversion of 40 direct support supply companies to the new structure with an anticipated productivity increase of 38 percent; and

☐Acquisition of the Heavy Equipment Transporter system for heavy truck companies, increasing capability by 37 percent.

NONTACTICAL VEHICLES (NTV)

The Army's NTV fleet consists of commercial vehicles used to perform Army training, security, recruiting, medical, sanitation, facilities maintenance, and other support missions worldwide. The use of NTVs for essential administrative functions without relying on more expensive tactical vehicles results in both increased readiness and major cost savings. Unfortunately, because of continual underfunding, approximately 35 percent of the fleet is overage and eligible for replacement. As the fleet ages, operation and maintenance costs, leasing requirements, fuel consumption, and the diversion of tactical vehicles all increase.

To correct this situation, the Army began to convert the CONUS portion of its passenger and general purpose fleets (approximately 42,000 NTV) to more economical General Services Administration (GSA) ownership in FY86. By FY92, the Army will meet 61 percent of its worldwide NTV requirements with GSA vehicles, increasing NTV availability and reducing the number of vehicles required. However, the $15.1 million in the FY90 budget and $15.3 million in the FY91 budget are far short of the $60.4 million required to procure overseas vehicle replacements in FY90 and the $45.7 million needed in FY91.

LOGMARS saves time and money.

3. AUTOMATION PROGRAMS

TRANSPORTATION

A number of complex transportation systems intended to automate mobilization and deployment operations and peacetime transportation functions are currently in development or nearing the fielding stage. These systems will have a significant, positive impact on Army readiness and deployability. They will improve the Army's capability to plan and execute unit deployment; provide automated interface with the Joint Deployment System, Joint Operations Planning and Execution System, and transportation commands; resolve major deficiencies in the USAREUR Theater of Operations transportation system; and speed the flow of personnel and equipment through our ports.

The following actions are scheduled for FY90/91:

☐Begin developments of the Strategic Analysis System;

☐Achieve milestone approval for the Automated Air Load Planning System (AALPS) and the Worldwide Port System;

☐Complete fielding of the Transportation Coordinator Automated Command and Control Information System (TC ACCIS) with complete fielding to 21 CONUS sites; and

☐Integrate AALPS and TC ACCIS.

COMBAT LOGISTICS

Many of the older logistics automation systems such as DS4 and SAILS are constrained by the automated data processing technologies of the 1960s and 1970s. Today's emerging logistics systems use current technology to provide commanders with an accurate continuous status of the logistical support available, thereby improving readiness.

IDENTIFICATION TECHNOLOGY

☐*Logistics Applications of Automated Marking and Reading Symbols (LOGMARS)* uses bar codes and scanners to capture and transfer data. The technology makes it more efficient to ship, inventory, and account for materiel and saves resources by increasing the speed and accuracy of data transfer. Savings realized by FY91/92 will exceed the total cost of the program to that date.

☐*Microcircuit Technology in Logistics Applications (MITLA)* is a second type of automated identification technology now under development that uses a variety of commercial microchip-based devices to capture, store, and transfer data. As with LOGMARS, MITLA delivers speed and accuracy in data transfer. Inventory, maintenance, and transportation applications are under development.

TACTICAL ARMY COMBAT SERVICE SUPPORT COMPUTER SYSTEM (TACCS)

TACCS is the principal combat service support automation system for the Army in the field, from the battalion to echelons above corps. TACCS supports:

☐*Standard Installation/Division Personnel System* for military personnel management functions;

☐*Standard Army Retail Supply System* and *Standard Army Maintenance System* for the inventory management and maintenance of spares and repair parts;

☐*Standard Property Book System-Redesign* for accountability of major end items;

☐*Standard Army Ammunition System* for ammunition management;

☐*Theater Army Medical Management Information System* for medical supplies;

☐*DA Movements Management System-Redesign* for transportation management functions; and

☐*Calibration Management Information System* for management of calibration equipment and functions.

Fielding of TACCS and related software applications began in 1985 and will continue through the early 1990s. To date, approximately 8,000 systems have been fielded to AC and RC units. By the mid-1990s, nearly 15,000 TACCS will be operational Armywide. Future funds will procure additional hardware, develop new software, and maintain existing assets. Funding shortfalls in this program will prolong our reliance on manual methods and antiquated automation systems – a costly and inefficient way to provide combat service support.

Inefficient manual administration is being replaced as TACCS is fielded.

PROCUREMENT AND ACQUISITION

☐*Integrated Procurement System* (IPS) will automate the acquisition process at Army Materiel Command's major subordinate commands, resulting in a virtually paperless processing system and electronic contract files. It will use word processing and electronic mail to bridge all existing procurement automated data processing systems into one comprehensive electronic contracting system. With adequate funding for full implementation, IPS should realize a net savings of $74.3 million in its first five years of operation.

☐*Computer Aided Acquisition and Logistics System* is a DOD effort to develop an integrated system that electronically acquires, processes, manages, and provides access to technical information worldwide. The current means for handling technical logistics information (printing and distributing paper copies) often provides costly inaccurate data and unacceptable delays.

4. BASE REALIGNMENTS AND CLOSURES

On 3 May 1988 the Secretary of Defense chartered an independent Commission to examine methods by which DOD could eliminate excess property and reduce base operation costs. The Commission developed a process to review all bases in a systematic, apolitical manner. In support of the Commission, the Army formed a task force to supply data and analytical support. Decisions on specific bases remained in the hands of the Commission and the Secretary of Defense. The Secretary approved the Commission's report on 29 December 1988 and forwarded it to the Congress on 5 January 1989. Closures and realignments will not begin until 1 January 1990 and must be completed by 30 September 1995. The results of this effort are expected to yield savings in base operations accounts in the long run, and a reduction in the installation management burden the Army currently shoulders.

5. MULTIYEAR PROCUREMENT (MYP)

MYP enhances program stability, encourages economic production rates, and saves money. The Army fully supports this acquisition strategy where it serves to field a force which can accomplish deterrence and achieve victory. However, we must be careful not to commit so large a proportion of the Army's annual appropriation to MYP that it reduces the flexibility required to provide the proper mix of equipment to the field. Our ability to respond rapidly to the evolving technology of potential adversaries is especially vulnerable.

After careful consideration of cost savings and readiness, the Army will submit the following candidates for FY90: Abrams tank, Bradley Fighting Vehicle, Apache helicopter, Stinger RMP, Stinger PMS, the Palletized Loading System, Family of Medium Tactical Vehicles, the HMMWV, and Patriot. The Army will continue to evaluate each potential MYP candidate individually, and support the MYP acquisition strategy whenever possible.

H. Complementary Operations

1. SECURITY ASSISTANCE

Security Assistance programs reinforce our basic national security strategy. This program is an important instrument for maintaining military-to-military relationships with other countries. Since 1980, Security Assistance funded military training has provided for more than 73,000 Army sponsored foreign students. In a time of fiscal crisis and political instability in many nations, Security Assistance provides materiel, services, and training, thereby preventing confrontations that might otherwise require the deployment of U.S. troops.

In spite of its important role in collective security, Security Assistance funding has steadily declined in the last five years because of congressionally mandated funding reductions. At the same time, excessive earmarkings have degraded the effectiveness of the program. Since FY85, total funding for Security Assistance has declined by $1 billion to $4.9 billion in FY89 while congressional earmarkings increased from 46 percent to 93.5 percent of the entire program. Meanwhile, the Soviet Union continues to provide Third World countries a yearly average of $6 to $7 billion dollars worth of materiel and training, mostly as direct grants.

The Army supports the restoration of funding for Security Assistance activities to at least $6 billion and recommends that earmarkings be reduced to allow the allocation of scarce resources in accordance with U.S. strategic objectives. This would allow the United States to provide better support to struggling nations and to those governments trying to counter insurgencies, narcotics production, and drug trafficking.

2. DRUG INTERDICTION

In response to 1981, 1986, and 1988 provisions enabling DOD support to drug interdiction operations, the Army cooperates with law enforcement agencies to the maximum extent possible consistent with maintaining essential military readiness. Actual missions performed are determined by coordination with responsible law enforcement agencies on a case by case basis.

Army support for U.S. drug interdiction has included more than $73 million worth of equipment loans, training, personnel support, information, and facilities. The amount of support provided in each of these areas is extensive and varied. The ARNG's role in providing support to civilian police agencies in a state status (Title 32), has been increased and a minimum of $40 million has been appropriated for such operations.

Honduran troops train with U.S. soldiers. Army to Army contacts foster political stability and promote our collective security.

Korea

Alaska

TRAINED AND EQUIPPED TO CONDUCT PROMPT AND SUSTAINED LAND COMBAT, TODAY'S ARMY MAKES A UNIQUE CONTRIBUTION TO OUR NATIONAL MILITARY STRATEGY

West Berlin

IV. Trained And Ready Tomorrow

A. The Army's Continuing Strategic Role

Tomorrow's Army must be trained and ready to fulfill its strategic role -- to deter war and to win if committed to combat -- in an evolving national security environment. As in the past, the capability of Army forces to deter aggression, and defeat it wherever it occurs, will remain the centerpiece of our national military strategy. Army forces must continue to be properly structured, flexible, and rapidly deployable to counter challenges worldwide.

As we approach the 21st Century, our first out of homeland priority continues to be NATO. The Army fully supports the negotiation of equitable and verifiable arms reductions as a component of our national security strategy to correct the conventional military imbalance in Europe. But the appropriate goal in the upcoming conventional arms control negotiations should be more than just force reductions; we must seek improved deterrence through parity of the NATO and Warsaw Pact conventional military capabilities which remain following the implementation of a treaty. Any changes must improve NATO's capabilities for effective collective defense relative to the offensive capabilities of the Warsaw Pact. Critical NATO capabilities which must be maintained or enhanced are:

☐*Early warning* of a Soviet/Warsaw Pact attack or mobilization;

☐*Forward defense* sufficient to repel a Pact "limited warning" attack;

☐*Reinforcement/mobilization* capabilities sufficient to respond effectively to Soviet/Warsaw Pact preparations for a reinforced attack;

☐*Adequate sustainment* assets to allow protracted defensive operations;

☐*Sufficient lift* to provide the flexibility required to employ our land forces worldwide; and

☐A mix of nuclear and conventional forces appropriate to achieve *escalation control* and *termination of the war* on terms acceptable to NATO.

In the final analysis, peace and stability depend on our demonstrated willingness to meet potential aggression on terms an adversary can understand. No symbol of resolve is more clear or more credible than a U.S. soldier, well trained, well equipped, well supplied, and determined to hold his ground. The requirement for U.S. soldiers and equipment forward deployed to Europe, Korea, and elsewhere will not disappear in the foreseeable future, nor will the need to reinforce those forward deployed forces and maintain contingency forces for use worldwide.

FUTURE ARMY FORCES MUST BE:

- ***PROPERLY STRUCTURED***
- ***FLEXIBLE***
- ***RAPIDLY DEPLOYABLE***

B. Doctrine For Tomorrow

One of the Army's highest priorities is developing the concepts to guide how the Army will fight in the future. Our current AirLand Battle doctrine will guide the U.S. Army into the 21st Century. The basic tenets -- agility, initiative, depth, and synchronization -- will most likely remain valid while emerging technologies and capabilities will improve our application of combat power.

The focus on how we will fight 15 years from now, the AirLand Battle Future concept (ALB-F), is based upon projections of threat capabilities, our worldwide commitments, and technological opportunities that may become available. Applied across the spectrum of conflict, ALB-F represents an evolution of our current AirLand Battle doctrine to meet our global requirements in the year 2004 and beyond. The concept is intended to guide the development of our doctrine, equipment, organizations, training, leader development, and support.

Our evolution to the Army of the future must be planned and disciplined. While the shape and composition of that future Army are not yet evident, its most basic needs will be:

☐Evolutionary development of tactics, techniques, and procedures to implement our updated doctrine;

☐Adequate structure for maximum flexibility;

☐Trained, innovative leaders;

☐Quality soldiers and disciplined units trained to fight and win; and

☐Prioritized force modernization and sustainment programs that provide for the application of emerging technologies.

C. Training For Tomorrow

1. DEVELOPING TRENDS

As the cornerstone of readiness, tough, realistic training will continue to be the basis of deterrence. Of course, continued constraints on available resources -- personnel, time, money, facilities, and equipment -- will be a continuing challenge for the Total Army. Consequently, training strategies and programs are being developed to attain and sustain higher soldier/unit proficiency at lower costs.

As we move toward the 21st Century, some of the developing trends are clear. Institutional and unit training programs will expand the use of simulations and simulators to reduce costs and increase realism, especially in the Reserve Component. Requirements for integrated, multi-echelon training will continue, with increased emphasis on joint and combined operations. Leader development through the officer and NCO education systems is key to the future of the Army; these leaders will shape and set the standards for tomorrow's Army.

The rapid advances of the last decade indicate that training support in the year 2000 may be radically different from even the most modern of today's training techniques. However, additional procurement and research and development (R&D) funding is essential to make best use of promising technologies, such as artificial intelligence for more realistic simulations; satellite and video conferencing networks for improved training management; and digital image technologies with compact erasable discs for life-like simulators.

2. HIGHLIGHTS

☐*Combat Training Centers (CTC):* The CTC programs are central to the Army's training strategy for the future. Increased operations at all CTCs will be required in order to raise the number of units participating in CTC exercises while maintaining high training standards. New technology should allow us to improve the execution of joint operations and share the lessons learned. Movement in this direction will begin in FY90 as the focus of CTC operations shifts from battalion to brigade level. Conduct of full brigade operations is programmed for FY93 with improved instrumentation, improved tactical engagement

The NTC will continue to be a central feature of our future training strategy.

simulation, and acquisition of additional training land at the National Training Center. Where training land is at a premium, such as in Germany, simulations will be used to expand to brigade operations.

☐*Family of Simulations (FAMSIM):* As training funds and maneuver areas become further constrained, FAMSIM will become the basis for simulation based training strategies. This advanced technology is intended to significantly reduce our reliance on expensive garrison battle simulation centers. Future commanders, particularly those whose units are widely dispersed, will also enjoy the benefits of distributed simulation and teleconferencing techniques to routinely link their units for training without costly movement of personnel and equipment. FAMSIM software improvements anticipated for early deployment include the Deep Battle Integration Trainer (DBIT), which will be an expansion of our corps/division-level simulation to multi-corps operations. Complementing DBIT will be the Combat Service Support/Training Support System, a combat service support simulation at the Army theater level.

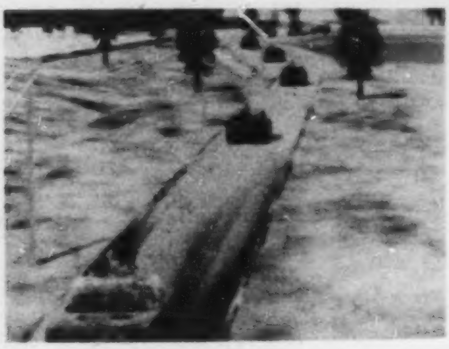
☐*Battle Command and Integration Program (BCIP):* The Combined Arms Center at Fort Leavenworth, Kansas, will combine four independent command and control doctrinal development and training programs into this centrally managed initiative.

--The Advanced Command and Control Facility develops command and control doctrine.

--The Future Battle Laboratory develops command and control equipment requirements.

--The existing Battle Command Training Program focuses on training corps and division staffs in a realistic environment.

--The Tactical Commanders Development Program trains designated officers for brigade and battalion command.

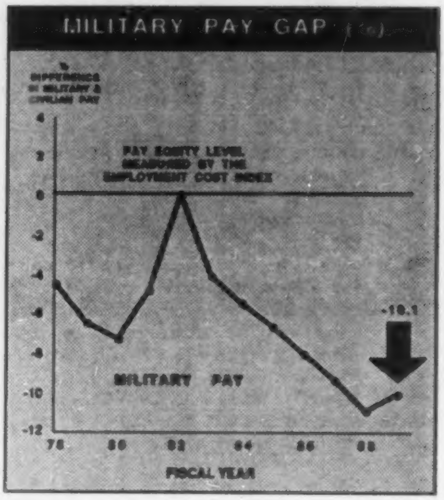


A computer generated view of the battlefield. Sophisticated simulators will keep crew skills sharp.

The BCIP will bind these programs together using advanced simulations available in the National Simulation Center, a wargaming facility now under construction at Fort Leavenworth. The result of this unified program will be a fully integrated combat development and training strategy for the Army of the future.

D. Quality Soldiers And Civilians For Tomorrow

To meet the military responsibilities prescribed by national security policy, the Army must continue to access and retain soldiers in sufficient numbers and quality to fight and win on the battlefield of the future. A number of manpower and personnel issues threaten the Army's ability to accomplish its strategic role into the next century:



☐The decline in the number of young workers available may reduce the quality mix of soldiers entering the Total Army;

☐Increased competition for quality people will strain existing limited resources in recruiting and retention;

☐The sophistication of emerging technologies will tax the skills of the individual soldier and the assets of the training community;

☐The shifting demographics of our population base will make it tougher for leaders to build a cohesive force;

☐Unexpected changes in force size and stationing may strain the entire personnel management system.

To provide quality soldiers and Army civilians for the Total Army, we must focus on tactical and technical proficiency. We must do a better job of matching people to skill requirements, training leaders for future challenges, integrating soldiers with weapons systems, and providing the quality of life required by soldiers and their families. An important means of addressing these issues is the Soldier Oriented Research and Development (SORD) Program, a major element of the Technology Base Master plan. By focusing proven R&D techniques on the soldier or civilian worker and his job, SORD will enable the Army to take positive, prudent actions to meet the human resource requirements of the future.

E. Technology For Tomorrow

1. EMERGING TECHNOLOGY

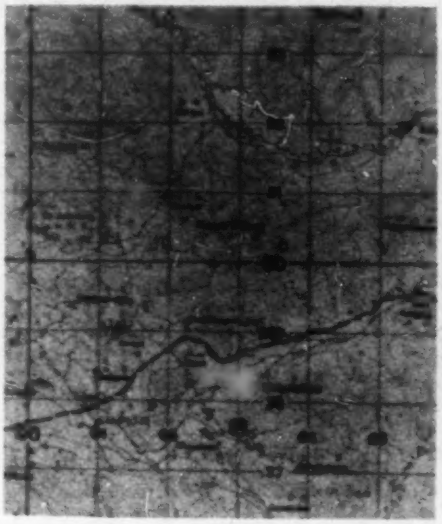
Tomorrow's technology can serve either to empower tyrants or to safeguard liberties. Adequate sustained investment in R&D is essential to continued military deterrence. The Army's technology base is the foundation of that effort. Our investment strategy to support the technology base is to set the minimum sustained funding for the Basic Research and Exploratory Development Program (Program Category 6.1 and 6.2) at zero percent of real growth beginning in FY90 and pursue a total technology base program (6.1, 6.2, and 6.3A) goal of 2 percent of Total Obligation Authority (TOA) consistent with guidance from DOD.

The Army's Tech Base Master Plan provides guidance and focus to R&D activities. Major elements include:

☐Reduce the lead time for introducing new technology into our weapons systems;

☐Retain our leadership in high technology;

☐Identify and exploit key technologies;



Traditional map
New technologies will revolutionize our maps.

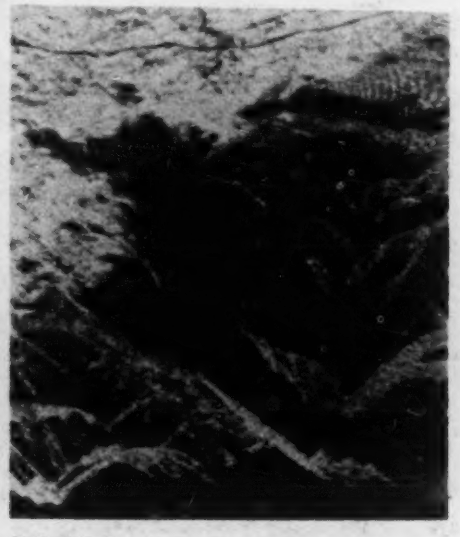
☐Take advantage of other service, industry, and academic investment; and

☐Balance resources between supporting current capabilities, fielding future systems, solving chronic problems, and developing new technologies.

Reducing the time required to incorporate new technology and field improved systems is of particular importance. To this end, the Army has focused significant attention on Advanced Technology Transition Demonstrators (ATTD). Successful examples include: the Fiber Optic Guided Missile (FOG-M); the Advanced Technology Demonstrator Engine that led to the T-800 Engine for the LHX; and the Advanced Composite Airframe Program which demonstrated the composite airframe technology planned for incorporation into the LHX. Some of our current ATTDs are:

☐Advanced Combat Vehicle;
☐Advanced Field Artillery system;
☐Combat Vehicle Command and Control;
☐AirLand Battle Management;
☐Air-to-Air Mission Equipment Package;
☐Day/Night Adverse Weather system;
☐Integrated High Performance Turbine Engine Technology/Engine;
☐Stand-off Mine Detection;
☐Aided Target Recognition.

Additionally, we are pursuing research in many areas which promise a high pay off in warfighting capability in the more distant future:



Digitized terrain

☐Protection/Lethality;
☐Artificial Intelligence;
☐Robotics;
☐Directed Energy Weapons;
☐Micro-Electronics/Photonics/Acoustic Devices;
☐Advanced Materials/Material Processing;
☐Advanced Signal Processing and Computing;
☐Power Generation/Storage/Conditioning;
☐Space Technology;
☐Low Observables;
☐Biotechnology.

In addition to joint service programs and cooperative agreements with other services and agencies, the Army also relies on programs with industry such as Small Business Innovative Research and industry R&D programs to spur investment. In the academic arena, Army support often multiplies the effects of individual research efforts. In many instances it leads to commitments that provide the Army with the educational assets needed to train both its civilian and military leaders of the future.

2. ARMY ROLE IN THE STRATEGIC DEFENSE INITIATIVE (SDI)-PHASE I

With over 30 years experience in ballistic missile defense research, the Army is making a major contribution to the SDI through the U.S. Army Strategic Defense Command. In FY89 the Army's program amounted to more than one-third of the SDI budget. Army strategic defense research is divided into five categories:

☐*Surveillance, Acquisition, Tracking, and Kill Assessment* includes radars such as the Ground Based Radar (GBR) to provide tracking and identification of incoming enemy warheads. Other projects include a rocket-borne probe, the Ground Based Surveillance and Tracking System (GSTS), to provide early warning and tracking, and the Airborne Optical Adjunct, a testbed for optical and laser tracking technologies.

☐*Directed Energy Weapons* programs explore more exotic technologies such as the Ground Based Laser that will demonstrate the feasibility of using lasers to attack hostile objects in space. Other beam devices such as the Neutral Particle Beam may eventually be able to identify and destroy enemy warheads.

☐*Kinetic Energy Weapons* that destroy enemy systems by impact can acquire, track, and intercept high speed targets. The High Endoatmospheric

Defense Interceptor, for example, is a high velocity interceptor that will destroy reentry vehicles within the atmosphere, while the Exoatmospheric Reentry-vehicle Interceptor Subsystem (ERIS) program is designed to intercept enemy warheads outside the atmosphere. Both use non-nuclear technology to kill the target vehicle. Advance research is also continuing in hypervelocity weapons that use electrothermal and electromagnetic energy to propel projectiles at very high velocities.

☐*System Analysis/Battle Management* provides control of the complex, multilayered defense system. The Army is focusing on mid-course and terminal phases of hostile missile flight for both continental and theater defense systems. Simulations are ongoing to validate the ability of prototype software to collect the necessary sensor data, make timely decisions, and pass instructions to the weapon systems.

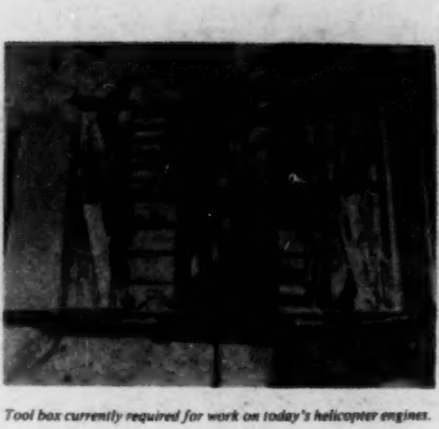
☐*Survivability, Lethality, and Key Technologies* investigate methods for enhancing survivability, reducing uncertainties of lethality and vulnerability, evaluating Soviet countermeasures, and developing materials to support new system concepts.

Recent program successes have led the Defense Acquisition Board to approve the start of demonstration and validation for the first phase of a strategic defense system. The Army systems presently included in this initial phase are the ERIS interceptor, the GSTS sensor probe, and the ground portion of the battle management system. The Army's GBR is also expected to be included in Phase I. A full scale development decision is expected by mid-1990.

Of course, "spin-offs" from technology advancements in these strategic systems have the potential to revolutionize tactical capabilities.

Through all of these R&D efforts, the Army continues to fulfill a vital role in the development of an effective missile defense for the United States and our allies in the future.

The Ground Based Radar is being developed by the U.S. Army Strategic Defense Command.



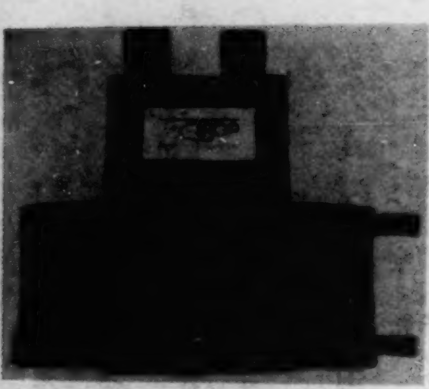
Tool box currently required for work on today's helicopter engines.

3. MANPOWER AND PERSONNEL INTEGRATION (MANPRINT)

Human performance is a key consideration in the incorporation of advanced technologies into new systems. The MANPRINT program focuses on human performance and reliability as an integral part of system design. Under MANPRINT, manpower, personnel, training, system safety, health hazards, and human factors engineering are seriously considered early in the design process. By keeping the soldier in mind throughout system development, we endeavor to equip the soldier, not just man the equipment.

Using computer models of the human figure and proposed equipment, we can refine the design of the *total system* (both human and machine) before prototypes are built. This results in a more efficient design process, a better final product, and savings in time and dollars.

As a result of MANPRINT initiatives, the T800 engine was developed for the LHX helicopter in such a way that no special skills or tools are required to maintain it. Mechanics need just six tools as opposed to the entire tool box required for current helicopter engines. Another example is the Howitzer Improvement Program where MANPRINT analysis led to reducing the crew from five to four, and improvements in the automatic fire control system.



Through MANPRINT the requirement for LHX engine repair was reduced to six tools.

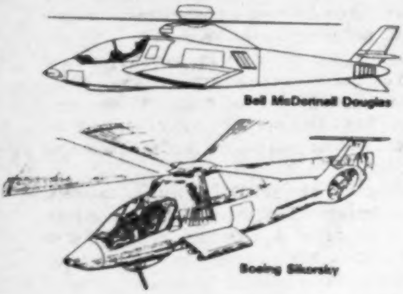
F. Systems For Tomorrow

1. LIGHT HELICOPTER (LHX) PROGRAM

The addition of the LHX into the Army's air cavalry and attack helicopter units will significantly expand our capability to conduct tactical operations in all types of terrain and weather. It will support our doctrine, both today and tomorrow, by conducting both close and deep operations with improved lethality and survivability.

The LHX will provide a highly reliable, easily maintained weapon system in place of a light fleet that is expensive to maintain and will soon be rendered obsolete by technological advances. It will replace the AH-1, OH-6, and OH-58 light helicopters and complement the AH-64. Advanced technologies will provide the LHX with great advantages in airframe and engine design. Developments in target acquisition, night flying, and navigation systems will expand the warfighting capability of Army aviation into the hours of darkness and adverse weather.

Critical aircraft design parameters are an empty weight of 7,500 pounds, and an average cost of $7.5 million (FY88 dollars). In FY90 the 23 month competitive Demonstration/Validation phase of development will be concluded. The T800 engine, currently in Full Scale Development, will complete Preliminary Flight Rating Testing in 1989 followed by engine qualification testing. LHX is planned for fielding in 1996.



Two LHX concepts are in the Demonstration/Validation phase of development.

2. HEAVY FORCE MODERNIZATION PLAN (HFMP)

The HFMP envisions the fielding of the next generation of armored and mechanized forces on a series of common chassis to allow maximum interoperability at minimum cost. This will improve both operational effectiveness and supply compatibility. Periodic improvements are planned from the outset to take advantage of evolutionary and revolutionary technological advances.

Since 1982, several internal and external major studies have determined that U.S./Soviet modernization for heavy systems is significantly out of balance. This has resulted in a definitive need to increase the rate of U.S. modernization and capitalize on technological opportunities to meet future warfighting needs. From the conceptual work accomplished by the Army's Armored Vehicle Task Force, HFMP has evolved into a specific and executable plan based on warfighting priorities and affordability. Part of the Army's goal in developing HFMP is to avoid slow, unimaginative, business as usual" approaches to developing and fielding heavy force vehicles.

The initial package of variants will consist of the Tank, Combat Mobility Vehicle, Advanced Field Artillery System, the Future Infantry Fighting Vehicle on a heavy chassis, and the Line-of-Sight Antitank and Armored Rearm Vehicles on a medium chassis. The first variant, the Line-of-Sight Antitank is scheduled for fielding in the mid 1990s.

3. THEATER MISSILE DEFENSE

As a result of Presidential guidance to expand research for a defense against ballistic missiles of all ranges, the Army's Strategic Defense Command is exploring technologies which can be utilized for Theater Missile Defense (TMD).

TMD studies focus on short and medium range ballistic missiles and are being conducted through cooperative agreements with our allies. These studies include system specifications, as well as development of operational and organizational concepts. The Extended Air Defense Test Bed will provide the facilities, hardware, and software to conduct simulations and support analyses of TMD issues at each of several participating locations both in Europe and in CONUS.

The Army is also conducting extensive research into systems capable of providing active defense against the TMD threat. The Extended Range Interceptor program will develop and demonstrate a prototype missile and fire control system. In addition, the Army has entered into an agreement to develop and demonstrate Israeli ARROW missile technology against surrogate TMD targets.

Proven Patriot technology is being adapted for Theater Missile Defense.

The Invite, Show and Test (IST) program will evaluate U.S. and allied systems, subsystems, and components to identify available technologies which may contribute to TMD. Eight IST contracts have been awarded.

4. CHEMICAL DEMILITARIZATION

The FY86 DOD Authorization Act mandated the destruction of the U.S. unitary chemical stockpile by 1994 in conjunction with binary chemical modernization; the FY89 DOD Authorization Act extended the disposal deadline to 1997. The Final Programmatic Environmental Impact Statement for the Chemical Demilitarization Program was completed in January 1988 and was followed by the Record of Decision in February.

Destruction of the chemical stockpile will be by incineration at each of the eight CONUS storage locations. In May 1988, the Army began disposal of the incapacitating agent BZ at Pine Bluff Arsenal, Arkansas. Operational testing is tentatively scheduled to begin in 1989 at the first full-scale chemical disposal facility, the Johnston Atoll Chemical Agent Disposal System, located in the South Pacific. Data from these tests will be applied to the design, construction, and operation of the facilities in the states. Chemical stocks located in Europe will be moved to Johnston Atoll for destruction. The National Academy of Sciences provides independent review and oversight of the $3.2 billion Chemical Demilitarization Program.

5. MEDICAL

Success in training and in combat depends on the availability of soldiers. Medical sustainment of these soldiers is best achieved through Army programs that prevent illness and injuries and speed the return to duty. Historically, 80 percent of all wartime U.S. hospital admissions have been from infectious diseases and non-battle injuries.

The medical R&D program focuses on reducing the impact of chemical/biological threats, infectious diseases, environmental extremes (20,000 heat fatalities in the 1967 Arab-Israeli Conflict), psychiatric casualties (25% of the total casualties in the Pusan Perimeter defense), and combat casualty care. Future programs will provide U.S. forces with pretreatments, decontaminants, therapeutics, and medical materiel to protect the individual soldier, while providing the modern, lightweight equipment that medical units need to treat and manage battlefield injuries.

6. THE ARMY IN SPACE

With the April 1988 activation of the U.S. Army Space Command, the Army assumed a major role in this country's space endeavors. Space now plays a growing role in deterrence and the conduct of joint combat operations. Space activities offer unique capabilities to see to the full depth of the enemy's forces and his supporting bases, and to help us attack as deep as necessary to disrupt his plans. The exploitation of these capabilities to support ground combat commanders will be a key feature in new doctrinal and tactical concepts which the Army is developing. Specific initiatives include:

☐The extremely successful Tactical Exploitation of National Capabilities program that provides support from national level space systems directly to battlefield commands;

☐Army Strategic Defense Command programs that explore technologies which could negate ballistic missile threats to the U.S. and our allies;

☐The Army has been designated lead service to develop a national kinetic energy Anti Satellite (ASAT) program. The Army's capabilities in ASAT technology stem from 30 years of experience in ballistic missile defense and current Army kinetic energy and directed energy developments for the SDI program.

☐Activation of the U.S. Army Space Command in Colorado Springs,Colorado, to provide Army perspective to the commander of the U.S. Space Command concerning DOD space support to land forces and strategic defense; and

☐TRADOC's Army Space Institute at Fort Leavenworth that develops doctrine, training, organization, and materiel requirements for space operations.

Today, USCINCSPACE is charged by the JCS with planning for DOD space support to the warfighting CINCs. The Army Space Command supports them by providing operational forces for the ground portion of designated space systems. As future space systems are fielded and the Army Space Command's missions expand, the demands for Army personnel and funds will rise significantly.

7. SUPPORT FOR THE FUTURE

Revitalization of Army Depots for the Year 2000 (READY 2000) is a comprehensive modernization program to anticipate the challenges of sustaining tomorrow's Army. Weapon system technology is constantly changing and new systems are introducing highly sophisticated technologies and materials which require state-of-the-art diagnostic test equipment and repair facilities. Much of this new technology (laser sighting devices, fiber optics, and microchips, for example) requires "clean" facilities with exacting temperature and humidity controls. New types of equipment coatings to reduce thermal signatures or resist chemical contamination require special application facilities to protect depot personnel and ensure proper performance of the coatings in the field. READY 2000 will implement logical modernization plans to accomplish this increasing workload with decreased manpower and provide optimum support to the soldier in the field.

The program is being implemented in four phases:

☐A strategic assessment was completed in July 1988;

☐An in-depth analysis is ongoing, funded by FY88-FY91 Operations and Maintenance accounts;

☐Facility design will begin in FY90;

☐Construction and procurement of facilities and special equipment will begin in FY92 and continue until at least FY2004.

The first revitalized depot will be ready to provide modern, technologically sophisticated support by FY94.

TOMORROW'S ARMY MUST BE TRAINED AND READY TO SECURE THE NATION'S FUTURE

V. Resources

A. Status Of The FY89 Budget

For FY89 Congress appropriated new budget authority of $78 billion. This was $68.5 million below our request. These Appropriation Acts completed the process which began with the bi-partisan budget summit agreement. As in FY88, the appropriation fell short of our budget request. Reductions included:

☐ $129.7 million from Weapons and Combat Track Vehicles;

☐ $205.9 million from Other Procurement, Army;

☐ $1.7 million from Operations and Maintenance (O&M), Army.

These were accompanied by several increases:

☐ + $75.9 million to military pay accounts;

☐ + $92.2 million to Aircraft Procurement;

☐ + $16.2 million to missile procurement;

☐ + $99.5 million to Army Research, Development, Test, and Evaluation (RDT&E).

Although the congressional actions provided funding levels in agreement with the Budget Summit, they created an imbalance in the carefully constructed Army program. Significant reprogrammings have been required in order to responsibly execute the FY89 budget. For example, the Army is dependent on the rapid approval of funding transfers from the Defense fuels account to support operations and maintenance activities. Increased costs associated with medical care and aviation training have also affected our FY89 budget execution and caused the deferral of many programs to the future, thus complicating FY90/91 budget formulation.

NOTE:

Preparation of this document was based on the President's FY90/91 Budget submitted in January 1989. The Army plans and programs contained herein will be amended as required by revised budget submissions.

Facing page: Our most important resource is high quality people.

B. FY 90/91 Budget Overview

As the threat to our Nation's worldwide interests grows more varied and more complex and the resources provided the Army remain inadequate, the risk to our national security increases. For the FY90/91 budget, emphasis is on maintaining essential force readiness, but the budget is unable to adequately fund several essential programs. These funding shortfalls include O&M Base Operations, Real Property Maintenance and Construction, Depot Maintenance, and institutional training programs. Additionally, the ammunition program is supported at a significantly lower level than in previous years. In short, the budget maintains the force structure in a high state of readiness, accepts additional risk in sustainability, and slows the pace of modernization.

The budget contains Total Obligation Authority of $80.7 billion and $84.3 billion respectively for FY90 and FY91. The funding level will support an AC end strength of 772,300 in FY90 and 772,400 in FY91, eliminating undermanning of the force and the turbulence caused by early out programs. During the same two year period, the ARNG will grow by 1,700 to 458,800 and USAR strength will increase by 5,000 to 323,700. Civilian strength will remain essentially constant.

C. Positive Aspects Of The Budget

On the positive side, the FY90/91 budget:

☐Fully mans the active force; the RC is manned at 780,000 in FY90 and 782,500 in FY91;

☐Continues growth in Selected Reserve end strength;

☐Supports an AC OPTEMPO of 800 miles/15 air hours;

☐Supports a USAR OPTEMPO of 200 miles/8.3 air hours;

☐Supports an ARNG OPTEMPO at the level necessary to maintain higher priority units at the C2 readiness level and lower priority units at C3 levels;

☐Provides for 33 combat maneuver battalion rotations to the National Training Center annually in FY90 and FY91;

☐Funds 9 battalion rotations to the Joint Readiness Training Center in both FY90 and FY91, and 16 Battle Command Training Program exercises each year;

☐Continues Combat Training Center implementation;

☐Fully funds initial entry training;

☐Funds the Army Aviation Modernization Plan and continued tank production;

☐Funds RDT&E for the M1A1 Block Improvement Program, Follow On To Lance, and Multiple Launch Rocket System-Terminal Guidance Warhead;

☐Meets CINC and MACOM priority construction requirements;

☐Builds 277 new housing units and upgrades/improves 3,700 others overseas; and

☐Approves acquisition of more than 15,000 new leases in CONUS and overseas.

FY90/91: Funding is adequate to provide for an OPTEMPO which will maintain Readiness.

D. Shortcomings Of The Budget

On the negative side, the FY90/91 budget:

☐Does not fully support NCO requirements (short 14,000 in FY90 and 9,522 in FY91);

☐Funds a growth of only 337 military technicians and Active Guard and Reserve personnel in the ARNG in FY90 and 190 in FY91 as opposed to the desired level of 350 positions/year;

☐Continues the slow pace of modernization through delays, terminations, and reductions in procurement levels;

☐Does not adequately fund depot maintenance or end item overhaul and repair. The backlog grows to $513 million in FY90;

☐Reduces funding for ammunition from historical levels of $2 billion to $1.7 billion, slowing the growth of war reserves. Training ammunition is fully funded;

☐Does not open 12 PRIMUS clinics previously planned, retaining only the 10 clinics already in operation;

☐Does not fund either facilities maintenance and repair or family housing maintenance at levels adequate to contain growth of real property maintenance backlogs. Although funding increases to $2,714 million for FY90 and $2,938 million in FY91, the backlog increases to $4.3 and $5.1 billion respectively;

☐Finances only the most essential environmental projects;

☐Does not renew/replace existing facilities on a realistic (40-50 year) cycle.

FY90/91: Funding is not adequate to prevent a growing backlog in depot maintenance.

E. Summary

The FY90 and FY91 Army budget requests $80.7 billion for FY90 and $84.3 billion in FY91 in Total Obligational Authority. This reflects a real growth of -0.7 for FY90 and 1.4 percent for FY91 compared to the DOD average of 1.7 percent and 2 percent in FY90/91. If approved, the FY91 increase in real growth would be the first experienced by the Army since FY85.

As the adversaries of the United States continue to spend a greater portion of their GNP on military programs, the burden of deterrence borne by the conventional forces continues to increase. The Army looks to Congress for funding to decrease this risk to our country.

A TRAINED AND READY ARMY IS FUNDAMENTAL TO DETERRENCE

Acronyms

A3
Armor/Antiarmor
AAFES
Army and Air Force Exchange Service
AALPS
Automated Air Load Planning System
AAMP
Army Aviation Modernization Plan
AATS
Army Aviation Training Sites
AAWS-M
Advanced Antitank Weapon System-Medium
AC
Active Component
ACCS
Army Command and Control System
ACE
Armored Combat Earthmover
ACOE
Army Communities of Excellence
ACS
Army Community Services
ACTEDS
Army Civilian Training, Education and Development System
ADATS
Air Defense Antitank System
ADDS
Army Data Distribution System
AFAP
Artillery Fired Atomic Projectile
AGR
Active Guard/Reserve
AHIP
Army Helicopter Improvement Program
AIT
Advanced Individual Training
ALB-F
AirLand Battle-Future
ALOC
Air Line of Communication
AMSP
Advanced Military Studies Program
AOE
Army of Excellence
APF
Appropriated Fund
ARNG
Army National Guard
ARPERCEN
Army Reserve Personnel Center
ASAS
All Source Analysis System
ASL
Authorized Stockage List
ATACMS
Army Tactical Missile System
ATCCS
Army Tactical Command and Control System
ATM
Anti-Tactical Missile
ATTD
Advanced Technology Transition Demonstrators
BAQ
Basic Allowance for Quarters
BCIP
Battle Command and Integration Program
BCT
Basic Combat Training
BCTP
Battle Command Training Program
BFV
Bradley Fighting Vehicle
BMAR
Backlog of Maintenance and Repair
BNCOC
Basic Noncommissioned Officer Course
C2I
Command, Control, and Intelligence
CA
Civil Affairs
CA
Combined Arms Initiatives
CAS
Close Air Support
CAS3
Combined Arms and Services Staff School
CBI
Computer Based Instruction
CENTCOM
Central Command
CGSOC
Command and General Staff Officer Course
CINC
Commander in Chief
CMTC
Combat Maneuver Training Center
CONUS
Continental United States
CPX
Command Post Exercises
CTC
Combat Training Center
DA
Department of the Army
DBIT
Deep Battle Integration Trainer
DEPMEDS
Deployable Medical Systems
DMAR
Deferred Maintenance and Repair
DOD
Department of Defense
DPP
Dedicated Procurement Program
DSB
Defense Science Board
DTSS
Digital Topographic Support System
EOH
Equipment on Hand
ERIS
Exoatmospheric Reentry-vehicle Interceptor Subsystem
EUCOM
European Command
EUSA
Eighth U.S. Army
FAADS
Forward Area Air Defense System
FAMSIM
Family of Simulations
FAO
Foreign Area Officer
FMTV
Family of Medium Tactical Vehicles
FOG-M
Fiber Optic Guided Missile
FORSCOM
Forces Command
FOTL
Follow On To Lance
FTS
Full Time Support
GBR
Ground Based Radar
GR/CS
Guardrail Common Sensor
GSA
General Services Administration
GSM
Ground Station Module
GSTS
Ground Based Surveillance and Tracking System
HAB
Heavy Assault Bridge
HFMP
Heavy Force Modernization Plan
HIP
Howitzer Improvement Program
HIV
Human Immunodeficiency Virus
HMMWV
High Mobility Multipurpose Wheeled Vehicle
HQDA
Headquarters, Department of the Army
HTTC
High Technology Training Center
IET
Initial Entry Training
IEW
Intelligence-Electronic Warfare
INF
Intermediate-Range Nuclear Forces
IPDS
Inland Petroleum Distribution System
IPS
Integrated Procurement System
IRR
Individual Ready Reserve
IST
Invite, Show, and Test
JCS
Joint Chiefs of Staff
JRTC
Joint Readiness Training Center
JSTARS
Joint Surveillance Target Attack Radar System
LANTCOM
Atlantic Command

LHX
Light Helicopter Experimental

LIC
Low Intensity Conflict

LOGAMP
Logistics, Acquisition and Management Program

LOGMARS
Logistics Applications of Automated Marking and Reading Symbols

LOSAT
Line of Sight Antitank

LOS-F-H
Line of Sight-Forward-Heavy

LOS-R
Line of Sight-Rear

LUPS
Logistics Unit Productivity Systems

MACOM
Major Army Command

MANPRINT
Manpower and Personnel Integration

MCA
Military Construction, Army

MCB
Managing the Civilian Work Force to Budget

MITLA
Microcircuit Technology in Logistics Applications

MLC
Military Load Classification

MLRS
Multiple Launch Rocket System

MLRS-TGW
Multiple Launch Rocket System-Terminal Guidance Warhead

MOBEX
Mobilization Exercise

MOS
Military Occupational Specialty

MQS
Military Qualification Standard

MSE
Mobile Subscriber Equipment

MTM/D
Million Ton Miles per Day

MWR
Morale, Welfare and Recreation

MYP
Multiyear Procurement

NAF
Nonappropriated Fund

NBC
Nuclear, Biological, and Chemical

NCO
Noncommissioned Officer

NCOES
Noncommissioned Officer Education System

NDI
Non-Developmental Item

NLOS
Non Line of Sight

NPS
Non Prior Service

NTC
National Training Center

NTV
Non Tactical Vehicle

ODT
Overseas Deployment Training

O&M
Operations and Maintenance

OPM
Office of Personnel Management

OPTEMPO
Operating Tempo

OSUT
One Station Unit Training

PAA
Procurement Appropriation, Ammunition

PACOM
Pacific Command

PCC
Pre-Command Course

PLL
Prescribed Load List

PLS
Palletized Loading System

PMS
Pedestal Mounted Stinger

POMCUS
Prepositioning of Materiel Configured to Unit Sets

PRIMUS
Primary Care of the Uniformed Services

PSYOPS
Psychological Operations

R&D
Research and Development

RC
Reserve Component

RCAS
Reserve Component Automation System

RDT&E
Research, Development, Test and Evaluation

ROPMA
Reserve Officer Personnel Management Act

RMP
Reprogrammable Microprocessor

RPMA
Real Property Maintenance Activities

RTS-MAINT
Regional Training Site - Maintenance

RTS-MED
Regional Training Site - Medical

SADARM
Sense and Destroy Armor Munition

SAWE
Simulated Area Weapons Effects

SDI
Strategic Defense Initiative

SF
Special Forces

SINCGARS
Single Channel Ground and Airborne Radio System

SOA
Special Operations Aviation

SOCOM
Special Operations Command

SOF
Special Operations Forces

SORD
Soldier Oriented Research and Development

SORTS
Status of Resource and Training System

SOUTHCOM
Southern Command

SPACECOM
Space Command

SRT
Special Reaction Teams

TACCS
Tactical Army Combat Service Support Computer System

TACJAM
Tactical Jammer

TC ACCIS
Transportation Coordinator Automated Command and Control Information System

TGSM
Terminally Guided Submunitions

TISA
Troop Issue Subsistence Activities

TMD
Theater Missile Defense

TOA
Total Obligation Authority

TOW
Tube Launched, Optically Tracked, Wire Guided (Antitank missile)

TRADOC
Training and Doctrine Command

TRANSCOM
Transportation Command

TTS
Tank Thermal Sight

USAR
U.S. Army Reserve

USAREC
U.S. Army Recruiting Command

USAREUR
U.S. Army Europe

USARJ
U.S. Army Japan

USARSO
U.S. Army South

USCINCSPACE
U.S. Commander-in-Chief, Space

VHA
Variable Housing Allowance

WESTCOM
Western Command

WHNS
Wartime Host Nation Support

Index

Abrams Tank........49
Active Guard/Reserve........39
Advanced Antitank Weapon System-Medium........51
Advanced Military Studies Program........29
Advanced Noncommissioned Officers Course........28
Air Line of Communications........65
AirLand Battle Doctrine........19
Airlift........61
AHUAS TARA........27
Air Defense Modernization Plan........48
Air OPTEMPO........31
Alcohol and Drug Abuse Program........45
Apache (AH-64)........49
Armor/AntiArmor........47
Armored Combat Earthmover........52
Army As a Strategic Force........1
Army Civilian Training, Education and Development System........30
Army Command and Control System........57
Army Communities of Excellence........41
Army Community Services........43
Army Helicopter Improvement Program........50
Army Long Range Planning Guidance........3
Army National Guard Initiatives........58
Army Plan........3
Army Tactical Missile System........52
Army Vision........2
Army War College........29
Automation Programs
    Transportation........66
    Combat Logistics........66
    Identification Technology........66
Aviation Modernization Plan........47
Aviation Training Sites........34

Base Realignments and Closures........67
Basic Noncommissioned Officer Course........28
Battle Command and Integration Program........73
Battle Command Training Program........26
Black Hawk (UH-60)........55
Bradley Fighting Vehicle System........49
Bridging........56
BRIGHT STAR........57
Budget
    Overview (FY90/91)........81
    Positive Aspects........82
    Shortcomings........82
    Status (FY 89)
    Summary........83
Bulk Petroleum Distribution........63

Calibration Management Information System........67
Chemical Demilitarization........78
Chemical Warfare Defense........51
Child Development Services........43
Chinook (CH-47D)........55
CINCs........3
Civil Affairs........25
Civilian Education System........30
Civilian Manpower Program........40
Civilian Personnel Plans........40
Close Air Support........48
Close Operations........19
Close Operations Systems........49
Combat Authorized Stockage List/Prescribed Load List Program........65
Combat Maneuver Training Center........26
Combat Training Centers........26,72
Combined Arms and Services Staff School........29
Combined Arms Initiatives........50
Combined Operations........20
Command and Control........57
Command and General Staff Officer Course........29
Commissary Program........44
Competitive Strategies........21
Computer Aided Acquisition and Logistics System........67
Contents........v
Continuing Education System........35
Countermine Operations........55

Data Distribution System........57
Dedicated Procurement Program........58
Deep Operations........19
Deep Operations Systems........52
Deep Operations System of Systems........48
Defense Satellite Communications System........57
Deployable Medical Systems........55
Depot Maintenance Program........64
Desert Mobility Vehicle System........53
Directed Energy Weapons........75
Doctrine........19
    AirLand Battle........19
    For Tomorrow........72
    Joint........20
Drug Interdiction........68

Emerging Technology........74
Environmental Compliance........46
Exercise Program........27

Facilities........59
Facilities Program Trends........60
Family Housing........42
Family of Medium Tactical Vehicles........54
Family of Simulations........73
Family Support........43
Feeding our Soldiers........44
Fire Support Modernization Plan........48
Force Protection........22
Forces
    Heavy........24
    Light........24
    Special Operations........25
    Structure........23
Forward Area Air Defense Command, Control, and Intelligence........50
Forward Area Air Defense System........50
FUERTES CAMINOS........27
Full Time Support Program........39
Functional Courses........28
Functional Officer Advanced Courses........29

GI Bill........36

Health Professional Loan Repayment Program........38
Heavy Fleet (Wheeled)........54
Heavy Force Modernization Plan........77
Hellfire........49
High Technology Training Center........33
Hostile Intelligence Agencies........39
Howitzer (M119 105mm)........51
Howitzer Improvement Program........51
Human Immunodeficiency Virus (HIV) Policy........46
Human Resources........45

Individual Ready Reserve Screening Program........37
Industrial Preparedness........64
Integrated Procurement System........67
Intelligence-Electronic Warfare........53

Joint Readiness Training Center........26
Joint Surveillance and Target Attack Radar System........53

Kinetic Energy Weapons........75

Leader Development........28
Light Fleet (Wheeled)........54
Light Helicopter Program (LHX)........77
Line of Sight Antitank........51
Line of Sight-Forward-Heavy........50
Line of Sight-Rear........50
Logistics and Acquisition Management Program........30
Logistics Programs........64
Logistics Unit Productivity Systems........66
Low Intensity Conflict........21

Maintenance Support Activities........64
Managing the Civilian Work Force to Budget........40
Manpower and Personnel Integration (MANPRINT)........76
Materiel Maintenance........64
Medical (Future)........78
Medical and Dental Care........41
Military Construction, Army........59
Military Engineering........55
Military Qualification Standard Program........29
Military Technicians........39
MOBEX........27
Mobile Subscriber Equipment........57
Mobilization and Operations Planning System........23
Modernization........46
Morale, Welfare, and Recreation........43
Mortar (120mm)........51
Movements Management Information System........67

Multiple Launch Rocket System........52
Multiple Launch Rocket System Terminal Guidance Warhead........52
Multiyear Procurement........67

National Army Medical Department Augmentation Detachment........38
National Military Strategy........1
National Training Center........26
Noncommissioned Officer Education System........28
Noncommissioned Officer Requirements........37
Non Line of Sight........50
Nurse Anesthetist Civilian Education Program........38
Nonstrategic Nuclear Forces........52
Nontactical Vehicles........66

Officer Education System........29
Operating Tempo........31
Overseas Deployment Training........34

Patriot........54,78
Physical Fitness Program........31
Pre-Command Courses........30
Prepositioning of Materiel Configured to Unit Sets........62
Primary Leadership Development Course........28
Priorities........4
Procurement Acquisition........67
Program Objective Memorandum........3
Psychological Operations Forces........25
PX Program........44

Quality of Life........40
Quality People........35
Quality Soldiers and Civilians for Tomorrow........73

Rangers........25
Readiness........17
Readiness Improvements........17
Rear Operations........19
Rear Operations Systems........54
Recruiting and Retaining Quality Soldiers
    Key Programs........35
    Trends........36
REFORGER........27
Regional Training Site-Maintenance........33
Regional Training Site-Medical........33
Religious Support........44
Reserve Component
    Automation System........34
    Medical Issues........38
    Modernization Issues........57
    MOS Qualification........33
    Noncommissioned Officer Education System........34
    Training Strategy........33
Reserve Officer Personnel Management Act........38
Resources
    Declining........14
    Negative Growth for Army........13
    Real Growth Trends........14
    Status of FY89 Budget........81
Retiree Support........39
Revitalization........59
Risks........14

Safety Program........45
Sealift........61
Security Assistance........68
Sense and Destroy Armor........51
Sergeants Major Course........29
Single Channel Ground and Airborne Radio System........57
Soldier Oriented Research and Development Program........36,74
Space........79
Special Forces........25
Specialized Training Assistance Program........38
Specialized Training for Army Readiness Program........38
Special Operations Aviation........25
Special Operations Aviation Program........53
Special Operations Doctrine........21
Special Operations Forces........25
Special Operations Forces Communications........53
Special Operations Systems........53
Spectrum of Conflict........23
Standard Army Ammunition System........67
Standard Army Maintenance System........67
Standard Army Retail Supply System........67
Standard Information Management Systems........67
Standard Installation/Division Personnel System........67
Standard Property Book System........67
Stinger Reprogrammable Microprocessor........50
Strategic Defense Initiative........75
Strategic Role........2
Supply Program........65
Support for Future........79
Support to CINCs........3,61
Surveillance, Acquisition, Tracking and Kill Assessment........65
Survivability, Lethality, and Key Technologies........76
Sustainment........61
Sustainment Engineering........56
System Analysis/Battle Management........76
Systems for Tomorrow........77

Tactical Army Combat Service Support Computer System........67
Tactical Water Support........63
Tactical Wheeled Vehicles........54
TEAM SPIRIT........27
Technology for Tomorrow........74
Technology Transfer........12
Terrorism and Drugs........12
Testing, Evaluation, and Instrumentation........60
Theater Army Medical Management Information System........67
Theater Missile Defense........77
Themes
    NCO........28
    Training........28
Threat
    Regional........9
    Soviet........7
    Summary........13
Topographic Engineering........56
Total Army........23
Total Warrant Officer System........38
TOW2........51
Training........26
    Airborne........30
    Battlefield Simulations........32
    Computer Based Instruction........32
    Developing Trends........72
    Devices and Simulators........31
    For Tomorrow........72
    Foreign Area Officer........30
    Initial Entry........30
    Range Modernization Programs........32
    Ranger........30
    Specialized Individual........30
    Support........31
    Unit........26
Training Technology Field Activity........33
Transition Management Program........36
Transportation Program........64

Variable Housing Allowance........43

Warm Base Hospitals........63
War Reserve Stocks........62
Wartime Host Nation Support........63
Women in the Army........39
Worldwide Mobility........61

Noncommissioned Officers are the backbone of the United States Army. I do not think we have ever had a finer Noncommissioned Officer corps.

John O. Marsh, Jr.

TUESDAY, FEBRUARY 28, 1989.

FISCAL YEAR 1990 AIR FORCE POSTURE

WITNESSES

HON. JAMES F. McGOVERN, ACTING SECRETARY OF THE AIR FORCE
GEN. LARRY D. WELCH, CHIEF OF STAFF, U.S. AIR FORCE

INTRODUCTION

Mr. MURTHA. The Committee will please come to order. Today the Committee will hear testimony supporting the Department of the Air Force budget as requested for 1990 prior to receipt of the Bush Budget Amendment. The request considered by the Subcommittee totals $98 billion or 5.9 percent above the $92.5 billion available in fiscal year 1989.

We are pleased to welcome the Acting Secretary of the Air Force, the Honorable James F. McGovern, and General Larry D. Welch, USAF, Chief of Staff of the Air Force.

Today the Secretary and the Chief will bring us the good news about their budget, and all the extra money in the Air Force which we will be able to use for some of the other Services which have had such a meager amount according to some of the rumors I have been hearing. I know that you will have extra money.

We realize that you are in the process of going through your budget amendment scrub. The only thing we have before us officially is President Reagan's Budget. We don't yet have the Bush Budget Amendment before the Committee and we are concerned, of course, what happens if you are cut back severely by the amendment.

There have been rumors that the House Budget Committee may assume a level of only $285 billion for defense function outlays in the 1990 budget resolution.

You can say—I have heard rumors as low as $285 billion. I think it is important that you tell the Committee what the impact would be if cuts of this magnitude were to be made to the Defense Department. Also, I hope you will cover the readiness issue as you see it today and what would happen to readiness and manpower if the budget were to be cut substantially.

With all the crises that are going on I think we have some work to do. It is going to be a difficult and key year.

Mr. Secretary, we will put your entire statement in the record along with that of General Welch. If you will summarize, then we will go to the questions.

SUMMARY STATEMENT OF SECRETARY McGOVERN

Secretary McGOVERN. Mr. Chairman, Thank you very much.

This is our first opportunity to appear before the Committee with you as the chairman and we congratulate you on your chairmanship and look forward to working with you.

Recognizing that you are a Marine and I am, too, in the Reserve, but despite that fact, we would hope that in the course of reviewing our budget, that you would leave the Air Force a few crumbs. We have been hit very hard in previous years, more so than the other Services.

NATIONAL SECURITY

Mr. Chairman, Mr. McDade, I have deep concern for the future state of our national security. There really is a disturbing shift afoot, a shift in the mood of our nation brought on by the self-rationalization and a misconception that we can hope the threats away.

This is an insidious process of being lulled into complacency, but that is what happens when a country finds itself at peace with increased pressure to fund domestic programs. People tend to rationalize the threat away and permit budget cuts to drive national policy.

A $20 billion or $30 billion cut made in one year, and lo and behold, despite all the Pentagon fussing, the budget cutters take great satisfaction in the fact that the Soviets are not landing troops on the shores of Norfolk, but Soviet influence is reaching the shores in another form. We must contend with the Gorbachev initiatives. Clearly, the Gorbachev media campaign is taking hold. It is a resounding success so far.

There is growing apathy in Europe concerning the aggressive nature of the Soviets and even the American electorate is starting to question the level of defense expenditures. Let's not forget the lessons we learned recently. Soviets respond to strength and we have never, never gotten anything unilaterally from the Soviets, especially by way of concessions.

With all this commentary of Gorbachev leading a PR campaign, there really aren't any new issues this year. Most of the critical areas, we have debated these issues before, but there are fewer innovative ways to resolve them, largely because there were fewer dollars available to us.

FISCAL YEAR 1990 BUDGET REQUEST

Mr. Chairman, I am very concerned about the President's strategy in sending up this budget, a bottom-line budget. I applaud his willingness to do so and I hope it will be onboard so we don't have to go back to the traditional gamesmanship between the Legislative and the Executive Branches which results in roller-coaster budgets, uncertainty and program instability. This year's budget will not be front-loaded. We will not game the budget process.

Mr. Chairman, this will be a good experiment to see if those who criticized Cap Weinberger for sending up unrealistic budgets will find out whether or not he would have done better had he sent up realistic budgets because nobody can say this is an unrealistic budget.

Our constraint makes this situation more ominous. We are going to have to make unsettling decisions to meet the zero growth budgets and you are not going to like them and we don't either. That is why we need the hard-nosed leadership of this Committee, particularly with your colleagues, because you understand these issues better than any one of your non-Committee colleagues.

We cannot continue to have the Congress view the Department of Defense Budget as the deep pockets for every other legitimate, but lower-priority funding need.

As we in the Congress and the Air Force tackle the large challenge this amended budget process imposes, we must ensure that we maintain a balanced Air Force posture, a posture that protects these four key items: readiness, sustainability, modernization, and force structure. These really do form the foundation of our national security. Unfortunately, like in the late seventies, they are being eroded. In fact, Mr. Chairman, this year for the first time we are having to make choices between those four elements.

Four years of negative real growth have not passed without some impact and I can't sit before you today and say that all is well. I can't even tell you things are going to get better. We have been forced to slow down our modernization rates as you will see as well as make significant reductions in force structure and sustainability. We have been striving to build toward an interim goal of 40 tactical fighter wing equivalents and 40 tactical fighter wing equivalents was an interim goal. Our requirement is 50. Now we are faced with having to carve two more wings away down from 37 to 35 and in recent years we came down an additional wing from 38, further exacerbating our shortfall in conventional theater forces. This is real war-fighting capability that is going off the table.

Nearly as vital to sustain our forces once we have committed them to battle, we are having to choose between readiness and sustainability because of this austere budget. Spares support for our tactical forces will decrease in fiscal years 1990–1993 from 97 percent to 67 percent of wartime sortie requirements. This is driven in part because we are only able to procure 27 percent of the war-time spare kits required to support new force structure deliveries. Additionally, the 1990–91 budget marks the third and fourth consecutive years we have been unable to fund kit updates for existing strategic, tactical, and mobility forces.

Any reduced force structure must be as modern as possible and unfortunately our modernization rate is slowed because of endless stretch-outs in procurement schedules. The F–16 procurement, as you see in the President's submission dropping from 180 to 150 per year is just one example and it may be even less than that as a result of the amendments to President Reagan's submission. Reductions in fighter procurement below 200 aircraft per year will ultimately drive the average age of our force upward away from our goal of 11 years. In the Reagan budget, we were forced to reduce overall procurement to only 186 aircraft per year.

Mr. Chairman, we are headed in the wrong direction. The next major step will be the Administration's submission of the amended budget. From there, things will be in your hands.

Initiatives to reduce force posture significantly beyond the balanced program that we are going to present, and you will see the amended budget must be considered with the utmost caution. We in the Air Force already stepped up to the force structure reduction in fiscal year 1988 and 1989.

Paramount to our future changes are the Congress and Defense Department who must work together. That is something that has been said many times before, but what I mean by that is that in submitting this reduced budget, we have had to put together a very delicate program balance.

I would hope that as you begin your deliberations, because of the delicate balance that we have had to arrive at, this Committee will give us the benefit of the doubt on close decisions. This should definitely be the case, Mr. Chairman, whenever the Secretary of the Air Force and the Chief of Staff personally weigh in on a program. We pledge not to gripe over every little variance that you make, but the bottom line is that we arrive at solutions which satisfy the Nation's security and not individual desires or predispositions.

Mr. Chairman, I am proud of the state of the Air Force today. By every measure, thanks to the support of this Committee and others, we are far more capable than we were eight years ago. That is not to say we haven't made some mistakes, just like mistakes that are made in Fortune 500 companies. It is imperative for us since there are taxpayer dollars at risk to ensure that these mistakes are not tolerated and we are doing everything possible to prevent past errors from being repeated.

MILITARY PERSONNEL

I am proud of the men and women in uniform. These folks come from the finest segments of American society. While many of us in Washington consume the majority of our time checking their work and pointing out their discrepancies, these fine men and women are in the field defending this Nation, dedicating their heart and soul voluntarily to preserve the freedom we enjoy. These men and women also deserve the benefit of doubt when it comes to programs that affect their quality of life. Please, so let's try not to do things in the name of that last dollar of efficiency which in the end adversely affects the morale of our people.

Our men and women are very sophisticated and they see this budget environment as well and the dire press reports and frankly they wonder if they are really appreciated, if they really are in the right business. Our people have been and are still the best asset we have and they are particularly important in a tough budget squeeze because that is where we get our innovative ideas. We must keep them motivated.

That ends my statement. I yield to General Welch who also has a statement.

Mr. MURTHA. General Welch.

SUMMARY STATEMENT OF GENERAL WELCH

General WELCH. Thank you, Mr. Chairman.

The Secretary has covered the subjects. I would add that in spite of the reductions over the past four years, we have a robust ready force as a result of twelve years of continuing modernization and nine years of continued focus on readiness.

The Secretary mentioned people. I would emphasize that by far the most important factor in that vital robust ready force is the quality of our people. We have worked on that quality for 40 years and it paid off in quality of people as seen in productivity all over the Air Force every day. Unfortunately, there are a number of shortfalls in the support of our people that they regard as breaches of faith.

For example, reduction in funding support for morale, welfare and recreation services has raised the cost of those services for individual people. The greatest impact is being felt by our junior enlisted force. Arbitrary caps on pay and variable housing allowance and inadequate funds for moving expenses are picking the pockets of those people.

The problem continues in the fiscal year 1990 budget: proposed user fees for dependents and retirees for medical care in military facilities. This committee helped stop that two years ago. We ask your help once again.

I could spend a lot of time on improvements that have been brought about. Let me simply close my opening comments by saying that our security demands men and women serving all around the world who fully deserve our trust and confidence and we have that situation today, but to be effective over the long run we must also have their trust and confidence. Those breaches of faith can do great long-term damage if we don't turn them around.

We have over the past decade made great strides with the help of this Committee. Much work remains. We have much unfinished business. I look forward to working with this Committee to complete that business.

[CLERK'S NOTE.—The joint opening statement of Secretary McGovern and General Welch follows. The Fiscal Year 1990 Air Force Joint Posture Statement is printed at the end of this hearing. See page 325.]

DEPARTMENT OF THE AIR FORCE

PRESENTATION TO THE COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON DEFENSE
HOUSE OF REPRESENTATIVES

SUBJECT: FY 90/91 AIR FORCE POSTURE

STATEMENT OF : THE HONORABLE JAMES F. MCGOVERN
Secretary of the Air Force, Acting

GENERAL LARRY D. WELCH
Chief of Staff
United States Air Force

FEBRUARY 1989

Not for Publication Until Released
by the Committee on Appropriations
United States House of Representatives

MR. CHAIRMAN AND MEMBERS OF THE COMMITTEE:

The mission of the United States Air Force is to organize, train, equip, provide, and support aerospace forces to deter aggression and, if necessary, defeat aggressors across the spectrum of conflict. This supports the most fundamental national security objective of the United States, the preservation of our free and independent nation with its institutions and values intact.

National Security Objectives Dictate Military Forces. There is a direct linkage between national security objectives, the resulting national military strategy, and the military tasks and capabilities required to underwrite that strategy. The national military strategy is well-conceived and has been remarkably stable in support of consistent national security objectives. That strategy, based on deterrence, is intended to ensure that no adversary could ever expect to gain by attacking the US or its allies. It is an austere strategy. We do not, either as a nation or an alliance, seek to match our adversaries weapon for weapon, let alone strive for superiority. Our goal is a cost-effective coalition of forces to deter, and that has been a consistently affordable and successful strategy for more than four decades.

The process of building coherent forces is relatively straightforward so long as there is a clear understanding of the threat, and resources are reasonably matched to the objectives of our enduring strategy.

The Threat. The continuing buildup of Soviet military power has, until recently, resulted in a public consensus on the need for a strong defense. Now, however, Mr. Gorbachev is projecting an international image that has encouraged hopes for fundamental changes in Soviet behavior. Whether perestroika and glasnost, if fully realized, will constitute a real opportunity for more fundamental improvements in US relations with the Soviet Union, and allow prudent reductions in US forces, remains to be seen. The Soviets have declared a shift to a defensive strategy of "reasonable sufficiency." However, there is little apparent change in the Soviet military posture to date. Soviet execution of their announced unilateral reductions of troops, tanks, artillery, and combat aircraft may reduce the quantitative superiority of Warsaw Pact forces, but the impact on North Atlantic Treaty Organization (NATO) force needs is unclear.

While these declared Soviet intentions should be viewed as positive, our defense requirements must be based on existing and projected Soviet capabilities rather than announced intentions. The lessons learned from past dealings with the Soviet Union clearly demonstrate the value of dealing from a position of strength and resolve. Just as the successful negotiation of the Intermediate-Range Nuclear Forces (INF) Treaty directly reflected NATO's resolve in countering Soviet SS-20 missiles, so too has US military strength demonstrated to the Soviet leadership the futility of attempting to impose their will on the free world. Our military strength remains a major influence on the course of world events, along with economic and political factors.

Matching Resources to Objectives. The essential continuity in national security objectives and national military strategy has not always been matched by a corresponding continuity in resources. This vacillation has subjected the entire defense establishment to a budgetary roller coaster. In the 10 to 15 years it takes to develop and field a new weapon system, there may be several substantial swings in defense funding. The inefficiency associated with this lack of stable financial planning dwarfs all other causes of inefficiency in defense procurement.

In the first half of the 1980s, the support of the Administration, Congress, and the American people enabled the Air Force to redress shortfalls in readiness, sustainability, and force structure that developed during the 1970s. As a result, today's Air Force is better manned, equipped, and prepared than at any other time in history. Nevertheless, defense budget reductions over the past 4 years, and the prospect for further budget austerity, have forced us to scale back, stretch out, and cancel many programs. The cumulative effect of these reductions and the markedly reduced budget levels for FY 90/91, if continued, will severely constrain future capability. The result will be greater risk in deterring aggression around the globe.

Leveraging Investments. In seeking to maintain continuity of capabilities in a constrained resource environment, the Air Force follows a three-fold approach to leveraging its investments in today's forces and programs.

The first element of that approach is to ensure the readiness of forces already fielded by focusing on spares, support equipment, munitions, and training programs. As a result, today's tactical fighter forces can generate almost 80 percent more combat sorties than they could in 1980, and the readiness of the bomber force is at an all-time high.

The second element in leveraging our investments is to improve existing systems with cost-effective modifications and upgrades. As a result, the newest B-52, which has served us well for over 25 years, will continue to serve for at least another decade. The re-engining of the KC-135 will give that aircraft an extended service life and greatly enhanced capability. The entire C-141 fleet was improved by stretching the fuselage and adding an inflight refueling capability, resulting in an equivalent of about 90 more C-141s. And, thanks to well-executed upgrades, the 14-year-old F-15 remains the best air superiority fighter in the world.

The third element of the Air Force approach is to develop new systems, when necessary, taking advantage of US technological superiority. The front-end investment cost of new developments dictates that we seek new systems only when the need clearly requires that we exploit that technological advantage of a vibrant free enterprise system. The F-117A, B-2, C-17, and Advanced Tactical Fighter (ATF) are examples of this approach.

The Air Force will continue its record of good stewardship of the taxpayers' dollars. Management initiatives instituted to ensure that we get what we pay for include multi-year procurement; increased competitive bidding at all levels; dual-sourcing; equipment warranties; a vigorous program to avoid fraud, waste, and abuse; and active productivity improvement programs that are built on capital investments, enhanced work methods, and grass-roots support through such means as the suggestion program.

Air Force Priorities. The Air Force recognizes the budgets that it planned and programmed for in good faith, will not be fully funded. We have therefore consciously elected to avoid the hollow force structure of the 1970s and opted instead for a reduced force structure that maintains capabilities. To provide the best possible force within the constraints of the FY 90/91 Budget, the Air Force has reexamined its overall priorities. Our top priority is to recruit, train, motivate, and retain quality people. Within the overall task of building and maintaining quality forces, our priorities are: to modernize strategic forces, maintain a high level of readiness and sustainability, increase airlift capability, modernize tactical forces, and integrate our improved ability to operate in space into every mission area.

OUR PEOPLE

As the Air Force leverages its technological advances into the most reliable and capable systems in its history, we recognize that high-quality people are needed to exploit the capabilities of this high technology. People make the difference between success and failure, and that is why we place the highest priority on recruiting, retaining, and motivating quality people. That approach has been continuous since the founding of our service 41 years ago.

Today, more than one million Air Force Active, Guard, Reserve, and civilian men and women help maintain our nation's security. Air Force retirees subject to recall to active duty also contribute to the team. They represent the foundation of our warfighting capability and serve as the key factor in our deterrence equation.

We will continue to put first priority on providing these quality people with a positive environment which protects their health and safety, includes adequate housing, ensures adequate financial support, and maintains the many support programs which meet the special needs of our Air Force families. While this commitment to our people may present some challenges in today's fiscal environment, it is the only way the Air Force can do its job.

Our Air Force people, both military and civilian, expect and deserve a competitive compensation package, including adequate pay and allowances; either adequate government quarters or full entitlement to variable housing allowances; appropriate permanent change of station reimbursements; quality health care; and other benefits. Unfortunately, due to a number of pay caps since the early 1980s, which have held pay raises below private sector wage growth, the comparability gap has grown to 10.1 percent--even after the positive 4.3 percent pay raise this past January. For FY 90, we urge the Congress to continue this positive initiative with a 3.6 percent military pay increase. Without such basic entitlements, we will see a decline in the success of our recruiting efforts in the competitive marketplace.

Although retention remains relatively strong in most career specialties, there is a serious decline in pilot retention rates. The pilot Cumulative Continuation Rate (CCR) has dropped from a high of 78 percent in FY 83 to 43 percent at the end of FY 88. Last year we lost nearly 800 more pilots than we produced, and the pilot retention forecast for FY 89 falls well short of the 63 percent retention rate we need to maintain a healthy, experienced force.

While we are undertaking many leadership and management initiatives to redress pilot concerns, it is obvious that monetary incentives must also be employed to reverse this downward trend. We are currently implementing the new Aviator Continuation Pay (ACP) by targeting it to the retention sensitive specialties, as directed by Congress. We forecast positive results and request continued congressional support for the bonus program, including an expansion of eligibility payment years. While the bonus represents a near-term fix, Aviation Career Incentive Pay (ACIP) remains the foundation of special aviator compensation and, as such, needs adjustment to restore the purchasing power lost since it was last raised in 1981.

In addition to focusing intensely on pilot retention problems, we are trying to minimize the impact of drawdowns in the officer and enlisted force. These reductions have been the result of budgetary and congressional direction. While we are using voluntary actions to the extent possible, we have been forced to use some involuntary separation actions. These reductions have involved difficult decisions, and we remain concerned about the long-term impact on the morale and combat readiness of the force.

STRATEGIC FORCES

Intercontinental Ballistic Missiles (ICBMs) are the most responsive element of the strategic Triad, combining accuracy and high daily alert rates to hold time-urgent, hardened, Soviet warfighting assets at risk. Plans to enhance the flexibility, survivability, and crisis stability of the land-based ICBM force through a combination of rail-garrison basing for Peacekeeper and a force of road-mobile small ICBMs have not been implemented due to budget constraints and competing priorities. Nevertheless, modernization of the ICBM force remains a critical issue and the Administration will be reviewing options to complete the needed ICBM modernization program in conjunction with the ongoing national security strategy review.

Bomber modernization, through deployment of the B-1B and B-2 penetrating bombers and the transition of the B-52H force to a standoff cruise missile role, will counter existing and projected Soviet air defense improvements. Each aircraft has an essential and diverse mission. Cruise missiles launched from outside defended areas, B-1Bs penetrating at low altitude and high speed, and B-2s penetrating at high and low altitudes will severely stress the Soviet air defense system.

The final B-1B was delivered ahead of schedule in April 1988. The FY 90/91 Budget will include funds to integrate a radar warning receiver into the defensive avionics suite to improve the B-1B's capability to penetrate Soviet air defenses. The first B-2 was unveiled in November 1988 and will begin flight testing this year. The Air Force has released updated program costs for the B-2 of $42.5 billion in baseline 1981 dollars, which equates to a then year figure of $68.1 billion. The cost of the B-2 in terms of cost per delivered warhead, a valid measure of cost-effectiveness contribution, is almost identical to that of the B-1B and less than that of other strategic modernization alternatives.

The continued modernization of the bomber force is even more critical when viewed against the background of a potential strategic arms reductions agreement. One of the principle virtues of the Strategic Arms Reduction Talks (START) will be a movement away from "fast-flying" ballistic missile warheads to more stabilizing bomber-delivered warheads.

Strategic defensive forces enhance deterrence by providing integrated tactical warning and attack assessment capabilities to detect, identify, and characterize attacks against North America.

We are continuing modernization of our ballistic missile and atmospheric warning systems. Our defense capability against the air-breathing threat will improve with enhancements to the E-3A Airborne Warning and Control System (AWACS) and the continued deployment of the F-16 air defense aircraft with its improved all-weather weapons employment capability.

Improvements in our strategic command, control, and communications (C^3) are necessary because this area is so vital to our strategic deterrent posture. We have accomplished a great deal in improving our capability in C^3 in the last several years, but this trend must continue if we are to keep pace with the Soviet offensive threat.

READINESS AND SUSTAINABILITY

While modernization programs and force structure gain the most public interest, effective warfighting capability demands equal attention to necessary investments in readiness and sustainability.

Over the past 8 years, support for these less glamorous, but essential, programs has created the most ready, most effective air force on earth. Aircraft mission capable rates peaked at an all-time high across the Air Force in 1988. Peacetime training programs have achieved degrees of realism previously impossible. Sustainment stocks have been substantially improved with modernized weapons to replace the Vietnam-era systems with which we entered the 1980s.

But readiness and sustainability require continued support and have already begun to show the effects of the inconsistent funding pattern seen over the past few years. While the Air Force has placed a high priority on protecting readiness, the deep cuts we have sustained have made it impossible to protect all the elements that go into sustaining the readiness of our forces.

Beyond affecting immediate capabilities, cuts in these accounts impair the long-term health of our forces. Reductions in the military construction account, for example, result in deteriorating facilities and in slowing the replacement rate for obsolete buildings. Cuts in depot repair/modification, over time, result in fewer mission capable aircraft and, as war readiness spares kits/base-level self-sufficiency spares stocks are withdrawn to maintain the peacetime flying program, sustainability suffers further.

FORCE PROJECTION

US force projection capability is essential to protect US national security interests. Our national military strategy demands a capability to respond to global challenges. The proper balance among airlift, sealift, and prepositioning enables us to deploy, employ, and sustain forces in a timely manner. Although sealift provides the greater part of US sustainment capability, there is no substitute for the speed and flexibility of airlift forces.

By the end of 1989, our programs to modify aircraft, increase spares, and procure new cargo and tanker aircraft will nearly double the strategic airlift capability of 1980. Despite these improvements, airlift capability still remains significantly below the nation's need.

The FY 90/91 program continues procurement of the cost-effective C-17 cargo aircraft. The C-17 will modernize the strategic airlift force and increase theater airlift capability. For the first time, we will field a strategic airlift aircraft with the ability to deliver a full range of Army equipment directly where needed, even into austere airfields.

Because strategic and conventional force air refueling requirements increasingly outstrip current capacity, we must continue to increase air refueling capability. The ongoing program to modernize the KC-135 tanker will result in a 50-percent increase in fuel offload capability at a fraction of the cost of a new aircraft.

The Air Force is intensifying efforts to increase the effectiveness of all force projection assets in support of national objectives. These forces are needed to meet the threat across the spectrum from low-intensity conflict and contingency operations to the highest levels of conflict.

TACTICAL/THEATER FORCES

Soviet theater capabilities have continued to grow despite announced changes in doctrine and in force structure. Their forces, which now include highly maneuverable fighters armed with look-down/shoot-down ordnance, are increasingly comparable to current Air Force systems. These advanced aircraft threaten the Air Force's ability to provide the air superiority which gives freedom of action to all allied theater forces.

Two high-priority programs--the Advanced Tactical Fighter (ATF) and the Advanced Medium Range Air-to-Air Missile (AMRAAM)--will enable our forces to maintain a technical edge on our adversaries. The ATF will incorporate low-observable technology, supersonic cruise and maneuver, and advanced avionics to yield lethality and survivability far superior to any current aircraft. Development continues toward a planned Initial Operational Capability (IOC) in the mid-1990s. The AMRAAM, now in low-rate production, is undergoing an extensive test program and achieving a success rate near 80 percent. The test program is scheduled for completion in time to support a full-rate production decision in the fall of 1989. This missile will provide a launch-and-maneuver, multiple-kills-per-engagement capability necessary against numerically superior forces as well as improved resistance to electronic countermeasures (ECM) over existing radar missiles.

Modernization efforts continue in ground attack forces as well. The F-15E will reach IOC in September 1989, an important step toward filling urgently required all-weather deep penetration capability. The LANTIRN navigation/targeting system will also reach IOC in 1989, enabling F-15Es and F-16 C/Ds to conduct night interdiction missions. This capability will provide our theater commanders a highly effective means of disrupting massed mechanized forces during the march to combat and, where necessary, in the close battle.

The Air Force has requested funds to procure additional multi-role F-16s in FY 90. This aircraft provides a solid example of the strength of the Air Force's three-fold approach to building combat capability: its mission-capable rate is about 80 percent, and the F-16s now being procured will enjoy all-weather attack and air superiority capabilities far beyond those of earlier models.

The Air Force places a high priority on close air support/battlefield air interdiction (CAS/BAI) to provide direct support to the AirLand battle. The increased enemy air defense threat and the Follow on Forces Attack (FOFA) concept of operations have resulted in the need to develop a follow-on to the A-10A. The Air Force is working with the Office of the Secretary of Defense and Congress to identify a mid-1990s follow-on aircraft and, once a decision is made, the Air Force will support it fully.

We continue to modernize and expand the capabilities of our special operations forces (SOF). Working closely with OSD, US Special Operations Command, and the other Services, the Air Force has focused on fielding SOF to meet the specialized needs of theater commanders across all levels of conflict.

While these systems will provide capabilities beyond those of current forces, it is important to note that the downturn in defense budgets, which has occurred over the past 4 years, has forced the Air Force to reduce its fighter force structure program from 37 wings to 35. Such a reduction entails an increased risk to the Air Force's ability to achieve its goals in a major conflict.

SPACE

The space launch recovery effort, which has been strongly supported by Congress, bore fruit in 1988 with the successful launches of all our existing unmanned boosters--the Atlas, Titan II, Scout, Delta, and Titan 34D--and the return to flight status of the space shuttle. In 1989, revitalized launch operations will continue with the advent of the Titan IV to replace the Titan 34D as our heaviest unmanned vehicle and with the first flight of the Delta II. The continuation of our other launch vehicle programs, Titan II and Atlas II, are also critical to lift into orbit the nation's highest priority national security payloads.

Air Force space-based support for terrestrial forces continues to expand. The force enhancement capabilities of space forces will be further strengthened by the introduction of the Navstar Global Positioning System (GPS), a navigational satellite launched aboard a Delta II in February 1989. This system is scheduled to reach full operational capability in 1992.

The Air Force continues to conduct space-based surveillance to provide timely and unambiguous tactical warning and attack assessment to the National Command Authorities (NCA) and combatant commanders and to provide space-based weather data to a wide range of users. The Boost-phase Surveillance and Tracking System and the Space-based Surveillance and Tracking System, which are now a part of the Strategic Defense Initiative, will provide even greater capability in the future to warn the NCA of hostile actions by potential adversaries. The Air Force is also continuing to develop and field multi-user communications systems to support both strategic and tactical communications requirements. Wide-area surveillance from space is now both technically feasible and operationally necessary to support air defense and theater operations. The Air Force is actively exploring concepts for a space-based radar to fill these requirements.

Space power will be as decisive in future conflict as air power is today. The Air Force must ensure that space-based capabilities are fully exploited within the constraints of technology, policy, and cost-effectiveness and are fully integrated into all elements of our combat forces. Over the past year, the Air Force conducted a major assessment of its current space capabilities and future requirements, and is defining a roadmap to guide the long-term growth of our space forces in achieving these goals.

CONCLUSION

The Air Force FY 90/91 Budget balances the need for quality people and quality forces. However, without the stability in budgeting that only Congress can provide, we cannot deliver quality, programmed forces in sufficient quantity at acceptable costs and with prudent risk.

Numerous studies have shown that stability in defense spending is the most effective method for improving management and reducing costs. The unstable funding environment of the last several years disrupts long-term defense programs. Similarly, the timeliness of the Authorization and Appropriations Bills, which directly affect all military operations, is crucial to better planning.

We are prepared to work with the Congress to ensure the United States Air Force remains a formidable aerospace force underwriting the national military strategy, today and in the future.

Mr. **Murtha**. Mr. McDade?

STATUS OF BUSH BUDGET AMENDMENT

Mr. **McDade**. Thank you, Mr. Chairman.

Mr. Secretary, we welcome you both here and appreciate the statements that you have made.

All of us know that this is probably going to be one of the most difficult years that we have ever had as we try to balance the limited dollars we have available to try to do what we need to do to keep the defense of the Nation strong.

What is the status of the Bush Administration budget amendment process as it relates to the Air Force? Have you been given a total target budget at this junction?

Secretary **McGovern**. We have been given a notional target. The Service inputs are being made this week to Secretary Taft. At the same time, there is a strategy review underway. It is the expectation that the President will submit a budget amendment of some form, probably during the second week of April.

Mr. **McDade**. The second week of April?

Secretary **McGovern**. Yes, sir, sometime after April 10.

EFFECT OF REDUCING READINESS

Mr. **McDade**. There are an awful lot of voices around now saying, given this budget constraint, that one of the most effective ways that we can save some money is to start reducing readiness as that definition is broadly defined. That is a fast payback to accounts and saves outlays.

What are your feelings about the voices that say in this crunch there are legitimate ways by reducing flying hours or whatever to try to deal with the money crunch?

How do you feel about that?

Secretary **McGovern**. I have heard that notion quite a bit lately from some fairly sophisticated people. I think we already made that mistake. I don't know why we would go back and do that again. In the seventies, we found ourselves with a hollow force. I don't know what else deters the Soviets more than us being ready.

As a matter of fact, I think many in the Congress have clearly argued persuasively that we have traditionally given priority in the Pentagon to modernization over readiness and that would be a real shift in attitudes over here, which I hope will not occur. I don't know what else our troops do day in and day out if they are not trying to be ready.

Mr. **McDade**. It is quite a reversal to see people advocating cutting readiness. If anything, it shows that the limits that we are facing as we look to zero-growth budget, we can agree, pick any account, no matter which account we pick, we are looking at what is going to be perhaps the most difficult year we have had in measuring the needs against the numbers.

It is a difficult problem and that and only that, I believe, leads to the kind of discussion that says, "Well, slow down the OPTEMPO, the flying hours. Slow down these things and we begin to save fast spend-out dollars."

I wanted to have your comments. I am not suggesting, I don't think anybody wants to suggest going back to a hollow Air Force, but in terms of recouping dollars, that is what a lot of people begin to talk about as you know.

Secretary **McGovern**. The readiness accounts are going to be hit and have been hit in previous years as you know so it is not as though they are going to remain sacrosanct. But to substantially reduce readiness in favor of modernization to me makes little sense.

Mr. **McDade**. General Welch, do you concur in the comments that have been made by the Secretary?

General **Welch**. In spades. In addition to what the Secretary has described, we simply can't maintain a quality force without readiness. That is what our people do every day. That is what the combat forces focus on.

If they don't focus on readiness, then they have no readiness. A hollow force forces you down the slippery slope of loss of quality and it takes years and years to rebuild that quality.

The issue is flying hours. An issue among our qualified maintenance people is whether or not they have the bits and pieces that they need to maintain the airplanes every day because that is what they do. If the government leadership and the Air Force leadership don't provide them the things they need to do their daily work, then they lose faith in what they do. It is devastating to morale and quality of the force if we don't provide our people what they need to maintain readiness.

NUCLEAR MODERNIZATION

Mr. **McDade**. Let me get your expert opinion in another area because as a former CINCSAC, you have expertise that you can bring to us.

Another area is the question of nuclear modernization and what we do. I think all of us would agree that over the last eight years, there has been enormous progress in modernizing the triad. Sea-based leg, a lot of progress with the Ohio-class, the D-5, the sea cruise missile.

The B-1B is on line, and we're also buying the air-launch cruise missiles, short-range attack missiles, advanced cruise missiles, and working on the B-2.

There are 50 deployed MX missiles in silos. However, it would seem to me that of the three legs, the least progress that has been made is in the ICBM leg because of the continuing controversy involved with the MX missile.

If you had to make a choice from your previous experience as head of SAC, would you describe resolving the problem of the land-based leg of the triad to be the most pressing problem we have?

General **Welch**. Certainly it is the area where we have made the least progress. We set out to build, not only to improve the Minuteman force, but also to build a force of 1,500 added modern warheads.

We have succeeded in modernizing the Minuteman force and improving its accuracy and fielded 500 Peacekeeper warheads and have been unable to arrive at the consensus required to complete that task.

I think that the Air Force made a very difficult choice two years ago in that we chose Rail Garrison because it was the most available, most affordable of the options available to us. That doesn't mean we didn't want Small ICBMs. It meant that in the budget environment, we went for the most available, most affordable solution to a mobile land-based ICBM, which I believe is vital to this country to have a mobile land-based ICBM, but we need a consensus on that matter somehow so we can go forward with it instead of constantly arguing the merits of one versus the other.

Mr. McDade. It looks as though you plan to spend a great deal more on the air-breathing leg of the triad in the next five years. When we look at the question of what we do to achieve consensus, I agree that we need to reach a consensus as a country, it looks as though from the budget numbers the Air Force has decided we have to put more money into air breathing.

General Welch. Certainly over a five-year period.

Mr. McDade. You have indicated and I think we all agree that from the standpoint of the continued security of the Nation, we have to get to a resolution of this question of modernization of the land-based leg of the triad.

When we look at the budget numbers, it looks like we are not going in that direction that you are cranking up to spend a large amount of money on air breathers and less on the land-based leg.

General Welch. I certainly wouldn't recommend reducing the programs in order to pay for ICBM modernization from a simple economic standpoint, as well as an operational standpoint.

We have laid out a program in past years that provided what we in the Air Force regarded as a minimum essential modernization of the ICBM leg. It is clearly affordable.

So the tradeoff between the air-breathing leg, the bomber leg, and the ICBM would only be taking money out of B-2 to pay for Small ICBMs because that is the only money available. There is no money to be taken out of the B-1 program.

Mr. McDade. If we tend to come to an agreement saying the most pressing problem we have is the land-based leg, when you simply look at the budget numbers, and I don't disagree that it is sometimes ineffective to look at one leg of the triad and not the other since they all are presumed to work together, but it looks like the dollars are on the air breathers and not on the land-based.

The problem with both MX and Small ICBM has been a dollar cost. But it looks as though we have decided to put money on the air breathers and not on modernization of the land-based forces.

General Welch. There is another way to look at it. The dollars per target covered are on the Small ICBM side. The air-breathing side gives you lower cost per target covered.

There has been no fundamental change in the bomber program. We are still pursuing about a 340 heavy bomber program that we set out to pursue in 1978. It is not as though there has been some addition to the bomber program. It has been a constant goal supported by the Congress.

The difficulty has not been that we have shifted attention from the land-based leg to the air-breathing leg. The difficulty has been we have had good consensus on the air-breathing side and are making progress and we have been unable to forge such a consensus on the ICBM side.

Mr. McDADE. I agree. Part of that is a dollar problem. You have described it as an operational and a cost problem and it is both.

When we had our briefing with Secretary Carlucci last year and he came down on the side of the MX—it is not that we don't believe the Midgetman doesn't have a role to play. It is because of the dollar problem.

If you get a flat budget and you have got to start making the kind of choices that I was talking about on readiness, those kinds of decisions flow into the strategic modernization program, too. So if you get a flat budget, where do you put your nickel? You look at a Hobson's choice between an air-breather and a land-based.

General WELCH. I don't think you would take money out of the air-breathing leg and buy Small ICBM warheads that cost twice as much per target covered. That doesn't make operational or economic sense. So that is simply in my view not the place to go to find the money to resolve the consensus issue.

STRATEGIC BUDGET RESOURCE LEVELS

Mr. McDADE. You are familiar with this other argument that there ought to be a sum dedicated to strategic forces, a kind of pooling of dollars that are allocated toward strategic modernization, recognizing that there is not going to be a lot of increase in dollars in the next five years in those programs.

Putting those dollars into a kind of a pool and drawdown against it and let you make decisions against those dollars about where you want to put that strategic dollar. What is your opinion of that?

General WELCH. I think it is an interesting thesis, but there is no one that would sign that contract. It is impractical.

Mr. McDADE. Why?

General WELCH. I guess I would ask if you believe that you can commit the next five Congresses. While we might be able to agree to a certain level of strategic funding, I don't think you can do that.

I don't think you can commit future Congresses to a level of strategic funding. For us to embark on fencing strategic money then there has to be some reliable indication that we can commit future Congresses to that.

Mr. McDADE. That if you had a cost dollar that you had to live with and work from over the next five years and make, within the expertise in your shop, a decision to live with those cost estimates, I believe Congress might abide by the consensus decisions that you would reach.

In my judgment, from this side of the table, we are assuming that given a cost figure that you have to reach some kind of consensus against the cost figure, unless it was totally unworkable.

Secretary McGOVERN. Mr. McDade, if I may, why would one do that? There was some legitimate criticism I think of the Reagan administration when it was at least alleged that certain strategic funds, SDI, B-2, MX, other unpopular programs, were somehow being held sacrosanct and they ought not be held sacrosanct in this era of uncertain budget levels, changing threats, changing counting rules in START negotiations.

Locking in a budget for strategic programs implies that the strategic program budget is out of control. It is not. I mean, you know because I know you have had this before your Committee, I think that maybe this year we are approaching 14 percent of the DOD budget on strategic programs. It has been a decline.

So why would you put a cap on that kind of a program with the budget uncertainty that we have and lock yourself into position of not being able to have flexibility on what you want on the conventional side and what you need on the strategic side, both program changes and operational threat program changes. Why would you do that?

Mr. **McDade.** Because we are looking at the same budget numbers and they don't look very good to us.

Secretary **McGovern.** All the more reason why would you lock in strategic programs. We might sign that contract but others would try to pull the raisins out of that cake on that particular funding level as we went through the process.

Mr. **McDade.** Let me ask you both to amplify your comments for the record.

Thank you.

[The information follows:]

The United States Air Force is an ever evolving part of national defense that continues to modernize to counter the growing Soviet technological threat and also insure national security of our nation. Therefore, the following strategic forces require timely congressional support and fiscal authorizations:

Bomber Modernization—The bomber leg of the strategic triad continues to carry the preponderance of megatonnage and at the turn of the century, will carry the majority of SIOP nuclear weapons. In order to insure that the manned penetrating bomber remains a viable deterrent, the United States must continue to modernize this force. The B-1B is a very capable high-speed, low level and all weather penetrator that will require modernization and upgrades as it continues to mature. The B-52H is moving into a standoff ALCM delivery platform in the late 90s as the B-52G aircraft are transitioned from nuclear into a credible worldwide conventional bomber with multiple modernized weapons in its arsenal. The backbone of bomber modernization is the timely acquisition and deployment of 132 B-2 stealth bombers. Technological advancements and upgrades by the Soviets make the economic procurement of the most sophisticated bomber ever built a must as the United States moves into the next century.

Tanker Modernization—Timely and rapid deployment of the Air Force and Naval aviation reinforcements depend on air-to-air refueling. In order to project power and support our allies, the United States has an increasing requirement for tanker aircraft. Continued modernization of the KC-135 with the R kit conversion is the fastest and most effective means to improve our refueling capability. Upgrades to the KC-10 will enhance our support for allied and naval forces. Continued support of this vital capability is a must.

ICBM Modernization—The Air Force is funding critical reliability/maintainability modifications to ensure a viable Minuteman system into the 21st century. At the same time, we are pursuing mobile ICBM systems by requesting funds to base Peacekeeper missiles in the Rail Garrison mode. During fiscal year 1989, the Air Force will conduct two flight tests of the Small ICBM and complete mobility testing of the Hard Mobile Launcher. An administration decision on the preferred solution for mobile ICBMs is expected in 1989.

Mr. **Murtha.** Mr. Dicks.

ICBM MODERNIZATION

Mr. **Dicks.** Welcome, Mr. Secretary and General Welch.

The administration is currently reviewing its plans for ICBM modernization as part of its overall strategic review. At this point I will forego speculation on the outcome of the review, but I want to discuss the impact current funding would have on executing some options.

What is the current status of the fiscal year 1989 funding execution on the Small ICBM?

Secretary McGOVERN. We recently sent you a letter, Mr. Dicks, indicating that of the so-called $350 million swing money that even though we were clearly authorized once a report was sent to spend that money on MX rail garrison we chose not to do that, and have indicated to you that while the President is assessing his new approach to ICBM modernization, that we will not spend any of that $350 million.

In the interim, I would assume that various people from the administration will be consulting with you and other Members to try finally to get this politically charged issue off the table. We wholeheartedly endorse that approach.

Mr. DICKS. If a decision were made to include the Small ICBM in the administration's modernization plan and there was a desire to keep the contracting team intact, what funding would be required in fiscal year 1989 and in what time frames could you achieve this objective?

General WELCH. We need $100 million added beginning immediately after the April deadline.

[CLERK'S NOTE.—General Welch testified that $175 million was necessary, but in editing, this number was changed to $100 million by the Air Force.]

Mr. DICKS. One-hundred and seventy-five—I was just out at the Ballistic Missile Office and they told us they needed somewhere between $100 and $125; $175 is what you think——

General WELCH. One-hundred and seventy-five added to the fiscal year 1989 budget supported by adequate funding in fiscal year 1990 would protect a fiscal year 1994 IOC. One-hundred in fiscal year 1989, again supported by adequate funding in fiscal year 1990, would rebuild the missile contractor base and protect a fiscal year 1995 IOC.

Mr. DICKS. Do you need a reprogramming of that money or some division of this $350 million if it was decided by the administration that they want to keep the Small ICBM going?

Secretary McGOVERN. Just the option. The $175 million could come from the $350 million or from other sources.

Mr. DICKS. The program is going to die in June because the money runs out and the money we put in last year would be terminated. We have to wait for this decision. I was curious about that.

The more the Air Force studies the Small ICBM, the more its cost drops. Isn't that interesting. A recent press report says a congressionally directed Rand report has been briefed to Air Force leadership showing the cost of 500 Midgetman missiles to be $29.8 billion, which is $7 billion below the official Air Force estimate. I was just at the Ballistic Missile Office twice in the last month and the estimates had changed there as well and in fact were lower than the number in the Rand study.

Now, why is it so difficult to get an accurate cost estimate on the Small ICBM, General?

General WELCH. I don't think it is difficult at all.

Mr. DICKS. Then why are we having this difficulty? Why is the Air Force estimate here, Rand here and the Ballistic Missile Office below the three?

General WELCH. The Ballistic Missile Office estimate is slightly below the Rand estimate. The differences have to do with assumptions on cost savings.

The Air Force has over the past two years continued to scrub hard on the Small ICBM program. As the program progressed, we got some good contracts. We found some risks that are lower than we had anticipated and consequently reduced the management reserves associated with that, and we have brought that program down to what we now regard as a figure that we well understand and that is $23.6 billion to complete the program.

FUNDING FOR WARHEADS

Mr. DICKS. Is that 500 single warheads?

General WELCH. Five-hundred single warheads, cost to complete is $23.6 billion.

Mr. DICKS. From where we are today?

General WELCH. After 1989.

Mr. DICKS. We need another $23.6 billion?

General WELCH. That is correct. That is down from about $29 billion for that same number a couple of years ago.

Mr. DICKS. What if we went to a dual—there has been a lot of discussion of going to a two-warhead system. What would the cost savings be if we went to some say 250 dual-warhead system?

General WELCH. I will give you the cost savings and then talk about the penalties.

Mr. DICKS. There are some I understand.

General WELCH. Cost savings would be in the neighborhood of $8.0 billion. The cost savings would be in that neighborhood. We can get you a more precise number.

[The information follows:]

The cost difference between the single-warhead 500 hard mobile launcher (HML) program and the dual-warhead 250 HML program is $8 billion in fiscal year 1988 dollars.

General WELCH. The difficulty, of course, is that if we would go to the two-warhead, 37,000-pound missile, then we foreclose southwest basing forever and we would be very reluctant to do that.

Mr. DICKS. There has been some discussion of possibly going to maybe 250 or some lesser number and basing it, in the southwest and maybe working out some combination of Rail Garrison MX, some number, 30. I have heard that number kicked around and then maybe 215 to 300 Midgetmen as a potential compromise.

What would be the plusses and minuses of that kind of approach?

General WELCH. Given that the solution to any forward movement on the land-based ICBM leg is some kind of consensus, which has been lacking—despite the fact that we have had our day in court and everybody listened to our arguments and still we have no consensus—for approximately $24.0 billion just as a for instance, for about that same amount of money you could put 300 small, southwest basing, or Minuteman basing, it doesn't matter, and add 300 new Peacekeepers on the rails for that price.

Mr. **Dicks**. So that would be kind of a compromise?

General **Welch**. That is one example of the many kinds of compromises that are possible within that Small ICBM price.

Secretary **McGovern**. If I may, since this is a very sensitive topic at the moment, Mr. Dicks, let me highlight that that is one of many options being discussed and this is clearly one that the President will make himself and I am sure that with the consultation of Members that have been very interested in that over the past few years.

LEVEL OF WARNING

Mr. **Dicks**. The big argument, I don't know whether you want to get into this now or in the classified session later, has been the level of warning that we are going to have. The advocates of the Small ICBM have said that it has much greater survivability because with just a minimal amount of warning, it can be moved, and that a Rail Garrison takes four to six hours to move and therefore during that time frame would be vulnerable to an attack.

Now, as I understand your position, General Welch or at least it was last year, you feel that there would be adequate warning and therefore that the extra time needed is not essential. Is that correct? Is that basically what your position is?

General **Welch**. I think so. They each have different qualities but if you consider the amount of money that we have spent on indications of warning, I find it incredible that anyone would doubt that we would be able to recognize a developing crisis.

We are not talking about 1941; we are talking about having spent over ——— on warning just in the last ten years. We have a tremendous investment in multiple systems. Three years ago ———. Today, the commander of SAC can ——— produced by systems.

So the idea that we wouldn't be able to recognize a building crisis, I find to be incredible. The more typical argument is the fear that the President wouldn't respond to the crisis that he recognized. I have a lot of difficulty dealing with that, to believe that in the face of a recognized evident crisis, that the President wouldn't respond by moving Peacekeeper out of the garrison on to the rails.

After all, that is a fairly straightforward decision. It doesn't increase the offensive threat to the Soviets. The Soviets could not view it as provocative. Since those missiles in the garrison are perfectly capable of launch, they have their maximum potential against the Soviets in the garrison, and when we move them from the garrison to rails, we change only their survivability.

My view is that that is a particularly easy decision to make. We have never doubted that in a crisis, that the President would increase submarines at sea, and we have done that. We have never doubted that the President would increase the airbreathing leg of the Triad and we have done that, so the argument that somehow the President would be reluctant to take the necessary step with that particular element of the triad, when there is no question that he would take that step with all the other elements of the triad, the argument doesn't hold water.

Having said all that, it is a fact that in order to make Rail Garrison survivable, the President must respond to a crisis with a decision whereas with the Small ICBM, the President doesn't have to respond to that crisis with a decision.

The question is, are you willing to pay that much difference to relieve the leadership of this country of the need to make a crisis decision, and that is a decision for you, not for me.

Mr. DICKS. You mentioned in your——

Mr. MCDADE. Would you yield?

Mr. DICKS. Yes.

Mr. MCDADE. I just wanted to get on the record that some argue that it is not an identical decision, maybe not even similar to, because it would be such a public event that it increases enormously the President's ability to deal and crisis manage. If he does that, he has done something very different than, for example, alerting the subs or the bomber forces.

What is your response to that?

General WELCH. I guess you have to think about whose viewpoint you are looking at. In terms of being provocative to the Soviets, which is a frequent argument, the frequent argument is the President would hesitate to do that because that provocative act might exacerbate the crisis. Increasing bomber alert is far more provocative because that increases the warheads that the Soviets face.

Those bombers that are not on alert are sitting out there today with no warheads, so increasing bomber alert increases the threat of the moment to the Soviets while putting a garrison on the rails doesn't do that.

So from a Soviet viewpoint, that decision is considerably less provocative. From a public interface standpoint, we can obviously increase bomber alert without having an impact on the public while if you put those trains on the rails, you do impact the public. So from public perception, it is a bigger event.

Mr. MCDADE. Do you think that is a more difficult or unlikely decision because of that?

General WELCH. I don't have any doubt that the President will make the right decision when the time comes. It is not that hard a decision to make.

Mr. AUCOIN. If you felt otherwise, would you testify to that effect?

General WELCH. I certainly would. I should point out that we came to Rail Garrison by direction of Congress. That is, the Congress said, "We don't want you to deploy any more MX in the silos; you have to find a way that is more survivable." We were perfectly satisfied, after having examined it for months and months, that Rail Garrison does fill all of our concerns on that score.

Mr. AUCOIN. If the gentleman would yield, I think the only reason you have MX missiles is because the Scowcroft Report, which indicated that the initial go-ahead on the MX would be a bridge to the ultimate weapon, which is the Small ICBM with the survivability and ample time for a Presidential decisionmaker to respond to a threat.

Mr. **Dicks**. Isn't there a case to be made that from a targeting perspective, that the single-warhead system gives you more flexibility?

General **Welch**. You would not want large numbers of MIRV'ed missiles because there is a limit to the number that are useful. The number is above 100 though.

Secretary **McGovern**. The changed circumstance from the 1983 Scowcroft Report is a very different budget environment. We otherwise would be very enthusiastic for the reasons that you mentioned. But it is a changed budget environment that we have.

The bolt-out-of-the-blue has always confused me as well, because it presumes that Soviet strategic planners give no credence or very little credence to the deployed forces, the SLBMs, the bombers on alert and the land-based ICBMs that don't require strategic warning because they are on alert every day.

NEW BASING MODE

Mr. **Dicks**. One of the points is this new basing mode. The Ballistic Missile Office briefed me on Carry Hard. They thought it was technically infeasible and that in good conscience, they could not support it under any circumstances.

I would like to ask your opinion, General Welch. How do you assess Carry Hard? Is it as bad as your Ballistic Missile Office says it is? I happen to agree with them on this.

General **Welch**. I am spared that decision by the fact that Carry Hard costs more than road mobile by 40 percent. I would clearly rather have road mobile than Carry Hard.

There are technical questions about the feasibility of Carry Hard and even more important perhaps, the questions of public acceptance and environmental impact and all the other things that go with that deployment scheme.

Mr. **Dicks**. It reminds me of DENSEPACK.

General **Welch**. The public perception wasn't good with that.

The fact that putting 500 ICBMs in Carry Hard would cost $38.6 billion, cost to complete, and the road mobile, $23.6 billion. Operationally I would far rather have the $23.6 billion solution than the $38.6 billion solution, so that makes Carry Hard uninteresting for me. I pay more for something I don't like as well.

MISSION OF THE B-2

Mr. **Dicks**. There has been a lot made in the press about your statements regarding the mission of the B-2 bomber. I would like you to lay out here today, as much as you can in this public session, what the role of the B-2 is both strategically and conventionally.

General **Welch**. Let me do it quickly. You start with the role of a manned-penetrating bomber. The B-2 is the manned-penetrating bomber of the future.

Clearly the bomber is the most flexible and the most versatile strategic weapon system we have. It can cover any target anywhere and its only limitation is that it doesn't do well against time-sensitive targets. It delivers the most accurate weapons with the largest yield. It has the look-and-shoot capability, which means that you can cover a larger number of targets more efficiently, and it is the only member of the strategic triad that contributes to anything other than strategic.

That is the primary reason for the B-2, that it holds at risk a very important class of Soviet targets that are most efficiently covered by the manned-penetrating bomber.

Mr. DICKS. The critics say that this is a system just for relocatable targets. That isn't correct, is it?

General WELCH. Of all the ways to address relocatable targets, the B-2 is the most promising. That doesn't make relocatable targets a justification for B-2, that happens to be one of the attributes it has.

We buy the B-2 because it is the most efficient way to cover a very large class of targets. Furthermore, there is widespread agreement that the bomber leg of the triad is far more stabilizing than the other legs and we would like to shift as much of the burden in the arms control process from ballistic missiles to manned bombers.

The Reykjavik counting rule counts the entire bomber and non-ALCM payload as one weapon, and that is recognition of shifting more of the deterrent posture to systems that respond slower and therefore are more stabilizing.

Mr. DICKS. Would you use a B-2 in a conventional role?

General WELCH. If it were important enough. Certainly you would in a general conventional war, say in a high intensity conflict in Central Europe you would. You weigh the cost of the bomber versus the risk that you will lose one for a conventional mission and since it has very high survivability, I can think of circumstances in less than general conventional war where you would use a B-2.

Mr. DICKS. Thank you, Mr. Chairman.

Mr. MURTHA. Mr. Miller.

Mr. MILLER. Thank you, Mr. Chairman.

Continuing with the B-2, General, you say that targets could be held at high risk with the B-2, but with the B-1B or the B-52 and the cruise missile, could they not also be held at high risk?

General WELCH. Certainly the cruise missile is a very effective weapon. There are two or three things that you can do with a penetrating bomber that you can't do with a cruise missile. First, it carries a significantly larger warhead.

Secondly, it can look before it shoots. Often times a cruise missile is the second weapon on a very hard target. It is much more efficient to use a penetrating bomber.

From an arms control standpoint, cruise missiles are treated exactly like ballistic missiles; that is, each cruise missile counts one warhead whereas penetrating bomber payloads are counted differently, which gives a considerable advantage to having penetrating bombers.

Mr. MILLER. Does the B-2 have electronic countermeasures?

General WELCH. I think we would have to talk about that in closed session, Congressman.

Mr. MILLER. What bothers me some is the cost we are talking about for the B-2 at the present time, and as high as $550 million a copy. It seems that that would buy a tremendous amount of cruise missiles and fighter aircraft, spare parts, pilot retention pay and that type of thing for the same money.

I suppose the crux of the matter is, can the B-2 make that much of a contribution to national security in proportion to its costs?

COST OF B-2

General **WELCH**. There is a problem that goes with that price tag. Any time you say an airplane costs that much, that is a difficult thing to deal with. That is cost. Let's talk about value.

In terms of the cost per target covered, and that is what bombers are for, to hold at risk Soviet targets in order to have deterrence, the cost of that, it is about the same price as the B-1.

The B-2 is far cheaper than a Small ICBM, so in terms of the value you get from that investment measured in targets covered by that system, the B-2 is a better buy than any alternative that we have.

Mr. **MURTHA**. Could you go into a little more detail about that? I don't follow the argument.

General **WELCH**. Cost per target covered?

Mr. **MURTHA**. Yes.

General **WELCH**. You divide the program cost of the entire B-2 force by the number of warheads that the B-2 carries on a single lift. That doesn't even assume reusability, and it is reusable, but targets covered on a single lift, the cost per target covered is within a half a million dollars of the B-1.

ALERT RATE OF B-2

Mr. **AUCOIN**. What alert rate are you assuming?

General **WELCH**. I am assuming fully generated for all forces.

Mr. **AUCOIN**. That is not really a fair way to measure, is it?

General **WELCH**. Sure it is.

Mr. **AUCOIN**. One-hundred percent alert rate?

General **WELCH**. One-hundred percent generated. I think generated is a fair way to measure it.

Mr. **MURTHA**. What has happened to the Soviet air defenses at this point, the airplanes in particular?

General **WELCH**. I am simply talking about targets covered. The Soviets have to calculate based on what they think we can do.

I am not making allowances for the probability of penetrating. In that case, the B-2 is better than the B-1, the B-2 is not as good as the Peacekeeper.

In terms of the deterrent task and that task is to ensure that the Soviets believe that all of those things they hold to be of value will suffer retaliation, so when we lay out the operations plan and we use all of the elements of the strategic triad and target them in the most efficient way we can against the target base we need to cover to provide deterrence.

In that calculation, in that actual targeting calculation that we go through, then it is cost competitive with the B-1 and it is more cost effective in terms of cost per target than the ICBMs.

Now, that is not the only way to measure the value but that is one of the ways to look at the value of the system. It will never be cost competitive with the B-52 because we don't have the opportunity to buy a new B-52. We bought the B-52 at a time when airplanes cost a lot less money. I am talking about being cost competitive with alternatives that are available to us today.

A manned-penetrating bomber greatly complicates the Soviets' defensive problem. We are not buying a B-2 to make the Soviets spend money on defenses, but it is a fact that they have spent billions on defenses and those dollars did not go to anything that threatens the United States.

Again, that is not the reason we bought the bomber. We bought the bomber to hold at risk Soviet targets that we need to hold at risk to have high confidence in deterrence. That is the mission of that bomber and it does that with good value.

Mr. **Murtha**. Mr. Miller.

COST OF WARHEADS

Mr. **Miller**. General, with those statements, maybe you could tell us what the cost of a warhead delivered by the B-52 or the B-1B would be.

General **Welch**. For the B-1 and the B-2 it is about $29 million.

Mr. **Miller**. For the B-1?

General **Welch**. For the B-1 and the B-2, they are both about $29 million.

Mr. **Miller**. And the B-52?

General **Welch**. It is far lower because the cost of the B-52 wasn't all that significant in today's cost calculations. The B-52 is far lower.

Mr. **Miller**. Could you give us a cost estimate on the——

General **Welch**. The B-52 will soon be unable to penetrate so it can't compete on that basis.

COST ESTIMATE OF MILITARY CONSTRUCTION

Mr. **Miller**. Could you give us the cost estimate of the military construction necessary to complete and deliver 132 B-2 aircraft?

General **Welch**. I would have to get that for the record, sir. It varies with each base depending on what is there. It depends on the bases selected.

[The information follows:]

The MILCON for beddown of 132 B-2 aircraft has been estimated at approximately $1.6 billion.

PILOT RETENTION

Mr. **Miller**. Shifting gears, the remark in your statement about pilot retention I believe is very important. You indicate in 1989 you need a 63 percent retention rate to stay healthy.

Last year in your statement you said that you lost 800 more pilots than you produced. It seems as though we are going backwards.

General **Welch**. Yes, we are.

Mr. **Miller**. What will it take to straighten this out? First, you might give us a figure as to what you propose we would lose this year, and then what do you think we would need in the way of dollars to straighten it out?

General **Welch**. I don't have the numbers, but I can tell you that the 63 percent requirement remains valid, and that is really based on our ability to grow experienced pilots rather than to recruit new pilots.

So in order to have in the forces the kind of mix of experienced and inexperienced pilots that makes an effective force, we need to retain about 63 percent. We are retaining at the present time about 40 percent. So that gives you some measure of the deficiency, which means that if we don't turn that around, the experience level will begin to come down and eventually we will have combat aircraft that are not manned, period.

There is no single solution to the pilot retention problem. We have had any number of polls and any number of ways to communicate with pilots to find out to the best of our ability, why they are leaving. There are a large number of reasons given and we have addressed every one of them, but, on everybody's list is the economic factor. Almost no one puts pay first, but it is on everybody's list.

The simple fact is that in today's environment, if a pilot is dissatisfied for a week or a month, he has a golden parachute. Military pilots know they can leave the service today and go to work for a commercial airline. The commercial airlines are hiring about 6,000 a year. So the golden parachute is there. If there is dissatisfaction for any reason, then they have that avenue available to them. And the airlines just pay substantially more than we do.

The pilot bonus is an approach which seems to do fairly well. The jury is still out, but the pilot bonus is an approach to allow those people who would like to stay with us that extra difference in economic incentive and to allow them the decision to sign up for six more years on top of their obligation. That is a marketplace approach. If that is not enough money, then I see no choice but to go further with the marketplace approach.

We are competing with the airlines whether we like it or not. We are never going to pay as much as the airlines do, but by paying bonuses, we can make a difference in the decision of a number of those people.

We are not trying to retain all of them; we are only trying to retain 63 percent.

Mr. **Miller**. You mentioned that the airlines are hiring 6,000. How many of those would be coming from our military? As we lose X amount of pilots, what percentage of those would be going over to commercial airlines? Some undoubtedly would not, but what percent would?

General **Welch**. I will have to get you that number. It was 60 percent——

[The information follows:]

In 1988, the major, national, and turbojet airlines hired 6,596 pilots. Future Aviation Professionals of America (FAPA) statistics for that year indicate 64 percent of major airline pilot hires had prior military experience. Overall, FAPA states 52 percent of all 1988 airline pilot hires were former military aviators.

Secretary **McGovern**. I am sure it is over 60 percent.

Mr. Miller, last year—I have never understood arguments against this program. There have been a few raised. Last year we asked for $56 million. We ended up getting a third less. We are asking $78 million in 1990 and in 1991. That is the cost of at most 2½ F-15s.

We are asking to take a pilot, who costs us up to $6 million to train and we are going to receive from this bonus program for only $12,000 per year of additional obligation, a $6 million asset which we couldn't replace even if we wanted. That is the cost of roughly three sorties in that F-15.

I don't understand the economics. When people say tough budget environment, that is nonsense. It is in our budget. We already had to take the programmatic offsets and stretch or cancel other programs in order to fit that in. It fits. It must fit. If we talk about the importance of readiness, these pilots are people that we must keep. I am glad you brought up the issue. It is a very important one. We are hemorrhaging and we have to stop the hemorrhage.

It is not just an Air Force problem; it is an international problem. The Norwegians and Asian countries are also having problems. We need to change the behavioral patterns with an infusion of dollars.

PROBLEMS OF COMMERCIAL AIRLINES

Mr. **Miller**. Today we hear so much about what is happening to the commercial airlines, breaking apart, skin coming off, metal fatigue possibly. Do we have the same problem with some of our old planes. Should we be looking into this more?

More and more we hear about it. We see the pictures where people have been blown out of planes because of holes, and we have planes that are undoubtedly as old, if not older than some of the commercial aircraft. If we have metal fatigue problems in commercial aviation, why would we not have the same problem in our military aircraft?

General **Welch**. There is a fundamental difference in our expectations when we buy airplanes. The airlines tend to buy airplanes with the expectation of high-use rates and not too many years of service, and then buy new airplanes. When we buy a tanker, for example, or a transport, we expect to operate that airplane for 25 or 30 years, and so we have a very, very careful inspection and corrosion control program for those airplanes.

The airplanes go to the depot periodically every four or five years depending on the aircraft. We strip all the paint off and examine it to see if there are any corrosion problems or cracks, and we repair those problems. We operate tanker and transport airplanes that are far older than what the airlines operate, but we also have a very effective preventive maintenance program, so we have none of those difficulties.

Mr. **Miller**. Are you saying that the commercial airlines do not have that preventive program?

General **Welch**. I am saying that the commercial airlines have a totally different expectation. They expect to fly the airplane a few years, that had been the expectation. They are in the process of changing that expectation. The 747 that lost a door was 19 years old.

I guess I would limit my expertise to what we do in the Air Force. We are very well aware in the Air Force of the fact that we keep airplanes for such a long time. The newest B-52 is 27 years old. We have re-skinned the wings on the KC-135s and we expect to operate those airplanes for 80 years. We just have a different attitude.

Mr. **Miller**. Thank you.

Mr. **Murtha**. Mr. AuCoin.

B-2 FLYAWAY COST

Mr. **AuCoin**. Thank you, Mr. Chairman.

General, I want to ask some B-2 questions as well. General Welch, I was delighted to hear you state or remind the Committee of the difference between price and value when it comes to, in this case, a bomber, but I think it applies to any system.

It always seems to me that a low price that brings with it a low value isn't much of a value. A higher price that brings a higher value can be a bargain. That has always been my impression of the B-2, a high value asset which can be of critical importance to us.

Recognizing that the B-2 is a special access program, I have been concerned that there are misperceptions about cost and mission of the B-2. That is just one of the inherent problems we have here. What plans, if any, does the Air Force have to more effectively communicate on this subject of cost in terms of real and unit flyaway costs, for example? We do that in other programs. Do you have plans to do that here as well as to stress the value that you mentioned of the B-2 in a full range of SIOP as well as conventional missions? It seems to me you must do this or the B-2 program is going to be asking for trouble that it might not deserve.

Mr. Secretary, General, either one of you.

General **Welch**. When we began to declassify the B-2, we recognized that there would be a tendency for the press to seize on catchy numbers and we did everything possible to focus attention on flyaway costs because it really is not fair to charge any program with all the R&D costs because the stream of R&D benefits extend for years and years and across multiple programs.

For example, the engine for the F-16 was developed totally with R&D in the F-15 program, so the question of how do you allocate the benefits of R&D is too difficult.

Flyaway of the B-2 would not be out of line with the flyaway cost of the 747, for example. We have been totally unsuccessful in focusing anyone away from that $500 million because that $500 million number seems to be such a grabber.

Mr. **AuCoin**. That does include the R&D cost?

General **Welch**. That is total program in then-year dollars so the average dollar is about fiscal year 1993, but it is a stream of then-year dollars and as total program costs, if we can keep that program on its current track——

Mr. **AuCoin**. What is the dollar amount in terms of real unit flyaway cost?

General **Welch**. Unit flyaway cost——

Secretary **McGovern**. In today's dollars I think we have $289 million.

Mr. **AuCoin**. Two-hundred and eighty-nine?

Secretary McGOVERN. We will have to give you that because I am not sure of these numbers that I have before me.

[The information follows:]

The average unit flyway cost for the B-2 is $175 million (fiscal year 1981 dollars), $265 (fiscal year 1989 dollars), and $305 million (then year dollars) using fiscal year 1988 inflation factors. Using fiscal year 1989 inflation factors the average unit flyaway cost is $301 million (then year dollars).

Mr. AUCOIN. Would $289 million be a good approximation?

Secretary McGOVERN. No. I think to bring it into perspective, one has to compare it with the flyaway cost of the B-1. We are comparing $25.5 billion for the B-1 with $26.5 for the B-2, so we need to compare 1981 flyaway costs on the B-1 with 1981 flyaway costs on the B-2.

Mr. AUCOIN. What is that comparison? Do you have that? That gets to my point.

General WELCH. The total cost——

Mr. AUCOIN. Staff shows me an Air Force press release dated December 16th indicating flyaway cost per aircraft estimated to be approximately $305 million.

Secretary McGOVERN. That is 1981 dollars?

Mr. AUCOIN. It is unclear whether that is 1981 dollars.

Secretary McGOVERN. I don't think so.

Mr. AUCOIN. That would be today dollars?

Secretary McGOVERN. I think that is then-year dollars. We will get that for you.

[The information follows:]

In the 16 December 1988 Air Force press release, the B-2 flyaway cost per aircraft was estimated to be $305 million in then year dollars.

Mr. AUCOIN. What can you tell me for purposes of the hearing today in terms of the question I have asked?

General WELCH. The B-2 on an apples-and-apples basis cost 19 percent more than the B-1. I can't think of another program where the next-generation airplane didn't cost more than 19 percent more than the generation it replaced.

As you say, it carries a lot of capability with it, but that doesn't change the price tag.

Mr. AUCOIN. Last year we went through a substantial adjustment. It reduced the earlier buys by over one-half in order to provide for less concurrency, which has been a concern of a lot of folks including Members of Congress. That rescission schedule made a more gradual rate to build up.

Was this a major factor in the increased total program cost from the $36.6 billion to the $42.5 billion in 1981 dollars?

General WELCH. It was a factor but the major factor in that cost increase was really the extended R&D time, the extended period of time required to complete the development of the aircraft. That accounts for about two-thirds of the cost increase over all and the rest of it is perturbations in the schedule since that time.

Mr. AUCOIN. What drove it?

General WELCH. When we set out to build the B-2——

Mr. AUCOIN. This is a plane that had to be built on the outside?

General WELCH. One of the basic reasons for going with the B-1 was we needed to fill that vacuum, but by 1981 it was apparent that the technical challenge associated with the B-2 was going to be considerable, so on the front end of the program we put an extensive risk-reduction program and a considerably different management approach than we used for the B-1.

The program was driven by program milestone accomplishments, performance accomplishment, not by the calendar, although the calendar is important because the calendar is money.

As we proceeded with development, we had a significant weight problem. Instead of dealing with that problem in a more traditional way, which is to work on every ounce of weight, we took advantage of the opportunity and the time we had for a basic wing redesign which allowed us to build a wing that was much lighter and retain all the stealth characteristics.

We made significant changes in the inlet design. That was a tremendous technical challenge, to design an inlet that provides efficient airflow and also provides for low observables, is a tremendously challenging thing.

Those were some of the things we did with the additional time. We took the time and made the investment in dollars and time on the front end of the program, so when we got into production, which we are now, that we not only had solved those technical problems, but we had solved the manufacturing technology that goes with that.

A lot of changes in part count, some things that we intended to build in one piece we ended up building in three pieces and vice versa. That all costs money. All of those things and more add up to additional money on the front end, but in terms of the lifetime cost of the airplane, they are a tremendously good investment and we ought to all be grateful that we had the time to do that.

Mr. AuCoin. Tell us about the testing to date. Have you seen any major technical show stoppers or other problems that ought to concern the Committee at this point?

General Welch. The answer is no, but any discussions on things that are going on now probably ought to be in closed session.

B-2 VERSUS B-1

Mr. AuCoin. How does the B-2 compare with the B-1 on base escape survivability, that is the combination of hardness, acceleration and initial climb?

General Welch. I think we will have to classify that.

Mr. AuCoin. Can you give that to us this afternoon?

General Welch. Yes.

Mr. AuCoin. What would a typical strategic weapon loaded refuel range be with that? Would that be a classified response too?

General Welch. Yes, sir. Let me say it is better than anything else flying, but that would be classified.

Mr. AuCoin. You said a year ago that you thought that the B-2 was a better bomber than the B-1 even without stealth. Do you still believe that?

General Welch. Yes.

Mr. AuCoin. Would you still support the B-2 if it didn't have capability against strategically relocatable targets?

General **Welch**. Yes. That problem is an important problem, but it is also a very complex one.

Mr. **AuCoin**. What percentage of the cost of the program is attributable to the strategic relocatable target mission?

General **Welch**. None. There are no systems in the B-2 not required to cover the range of targets that it would cover in any case that are added specifically to find relocatable targets.

Mr. **AuCoin**. Am I mistaken that this was a capability that was added in 1986 by the Office of the Secretary of Defense responding, which asked for the drawing up of a master plan dealing with relocatable targets?

General **Welch**. In 1986 the Secretary of Defense added the requirement that we develop a capability to attack relocatable targets, that is true.

Mr. **AuCoin**. That came cost free?

General **Welch**. No. It just didn't do anything to the B-2 essential design. It did not come cost free as a system.

Mr. **AuCoin**. But whatever we made for it was then folded into the B-2 program?

General **Welch**. I am trying to not skate around classified—I think it would be better later.

Mr. **AuCoin**. I have heard some groups, I think the Federation of American Scientists who claim that you are going to need a dedicated satellite system to support a bomber SRT capability.

Can you respond to that in open session?

General **Welch**. Well, certainly.

Mr. **AuCoin**. Is it true?

General **Welch**. Timely location and timely attack on a broad range of relocatable targets involves more, but we are—I better stop there.

Mr. **AuCoin**. That one has to be dealt with in classified session as well. I think all my questions I will save for the classified session.

Mr. **Murtha**. Mr. Livingston.

CHEYENNE MOUNTAIN

Mr. **Livingston**. Thank you, Mr. Chairman.

I have some statements and questions I would like to submit for the record on the hurricane reconnaissance. I will submit that for the record.

I also have questions on Cheyenne Mountain. In a recent hearing, the CINC of the U.S. Space Command advised us to "ask the Air Force" about the chronic management problems with computer acquisitions for Cheyenne Mountain.

General **Welch**. The Air Force single manager for acquisition and support—the Air Force single manager for the Cheyenne Mountain upgrade is the commander of Air Force Space Command.

The acquisition responsibilities, of course, are Air Force Systems Command, but the overall single manager who reports to me for that purpose is the commander of the Air Force Space Command.

Mr. **Livingston**. He is the commander of operations?

General **Welch**. He is the commander of operations, and he is also the single manager for all those programs.

You recall when we had the false alarms and the false warnings. One of the results of what I call the Leaf Study, one of their recommendations was that because of the complexity of all of these programs, that needed to go into Cheyenne Mountain, that we needed a single manager for DOD who was responsible for the entire cycle, design, overseeing acquisition, and we assigned that at that time to the Air Force Air Defense Command, but that has since been given to Air Force Space Command so that currently resides with that command.

Mr. LIVINGSTON. There seems to be some controversy about that because there seems to be a division of responsibility that gives us some concern.

Are you satisfied with the Air Force progress in meeting the CINC's operational requirements with these upgrades?

General WELCH. No. One program is four years behind and one is seven years behind. Of course, I am not satisfied. I don't think that is because of confusion of responsibility.

Mr. LIVINGSTON. Let's be specific. The Communications Systems Segment-Replacement or CSS-R program, a $281 million program is $80 million over cost, two years behind schedule and equipment was delivered that can't be plugged into the mountain. It can't work if it is not plugged into the mountain.

The SPADOC, Space Defense Operations Center program, a $437 million program, $147 million over cost, is three years behind schedule and five to seven years late on installation. What is the problem? Why can't we address these problems?

Apparently this is not just something that is significantly new or sudden or spontaneous. Why can't we get to the bottom of this?

General WELCH. Unfortunately you are right; it is not a new problem. General Kutyna will appear at a hearing to give you any kind of detail you want.

In the first place, it is a very complex integration task that we are going through for both of those programs. In the case of the CSSR, the 1985 restructuring of that program scheduled the technical control modification for 1991.

From 1985 on, our planned clean-up of the cable installation situation to fix the cable saturation problem in the mountain and the standardization of the plug-out connectors that we would require in order to tie all that together was scheduled for 1991. I see no reason why we won't do that by 1991. That is on schedule since the 1985 restructuring.

One of the complexities is we have to keep running that ship while modifying the ship and those cable paths are just one part of it. We are not digging any more holes through the rocks so it is a fairly complex sequential process that we have to go through, but that is pretty much on schedule.

In the case of SPADOC, there are two fundamental problems. One was a very large problem. The first task of SPADOC of Phase I was driven by the need to control the ASAT. As ASAT slipped from year to year and the requirements changed, the nature of

SPADOC IV changed dramatically. Requirements grew, requirements needed to grow in the SPADOC program.

By 1995, SPADOC is going to have to process some 150,000 observations per day just to keep track of everything in the data base, and that has multiplied much, much more rapidly than anyone anticipated because of the greatly increased use of space by both the United States and the Soviets. So that was part of it.

I think the most important thing to say about the programs now is that, yes, there is about a 25 percent cost overrun, they are all late, but Phase I of SPADOC is in, and it is a lot better than what we had before. We have a design review in about six months on the next phase. At this time we are reasonably confident that we know how to solve all those problems. But——

Mr. LIVINGSTON. I don't mean to interrupt. I haven't been out there and I would like to go. I understand, though, the SPADOC Phase I contract for $119 million had 590 deficiencies and yet the Air Force awarded Phase II to the same contractor for another $103 million.

When you know about deficiencies and award to the same contractor, doesn't that pose a contracting problem?

General WELCH. Not necessarily. The contractor has to fix all those deficiencies. He is making progress.

Mr. LIVINGSTON. I have other questions here which follow that up which I will submit for the record.

[CLERK'S NOTE.—Questions submitted by Mr. Livingston and the answers thereto follow:]

Question. General Welch, who in the Air Force is responsible for the $1.3 billion computer acquisition for Cheyenne Mountain?

Answer. The Air Force single manager for the Cheyenne Mountain Upgrade is the commander of Air Force Space Command. Acquisition responsibilities, of course, belong to Air Force Systems Command, but the overall single manager is the Air Force Space Command commander.

Question. Are you satisfied with the Air Force's progress in meeting the CINC's operational requirements with these upgrades?

Answer. No. Of course we are not satisfied. One program is four years behind and one is seven years behind.

Question. What's wrong with the two main programs we discussed at the CINC's hearing?

Answer. We are going through a very complex integration task on these programs. In order to save money, in 1985 the Air Force made a conscious decision to install CSS–R Blocks I and II simultaneously. Since then we have been on schedule to clear up the cable problems in the mountain, standardize the wiring interfaces, and complete all other clean-up in time to support CSS–R installation/initial operational capability (IOC) in FY 90/91.

In the case of SPADOC, there are two fundamental problems. First, SPADOC performs a very large and complex job. For example, one of the first tasks of SPADOC IV was to control the US ASAT as soon as possible. The pressure to complete this job created what turned out to be an unrealistic IOC of 2 years from program start. The second problem is that requirements changed due to an evolving space threat, and as a result, the nature of SPADOC IV changed dramatically.

Question. Explain your contracting practices on these programs where contractors deliver products with known deficiencies which the Air Force waives and then awards hundred million dollar sole source contract extensions?

Answer. The Air Force did not award Ford Aerospace a new sole source contract for the second block of SPADOC. When Ford Aerospace won the competition from Martin, it was for all three SPADOC blocks.

On SPADOC, the Block B option was awarded 6 months prior to the scheduled completion of Block A. On April 20, 1988 when Block A was accepted, 573 service reports had been written, 279 of which had been closed. Of the remaining 294, only 35 were within the scope of this contract. Those were subsequently closed. Although the contractor did not meet many of the Block A quantitative performance requirements, the contractor must meet these requirements as part of Block B.

The perception that the Air Force is waiving known deficiencies is incorrect. For example, in the case of Communications System Segment Replacement (CSS-R), the Air Force decided to install the entire Block I and II system in Cheyenne Mountain Complex (CMC) at one time in order to save money. The work required to finish Block I with system testing (although not yet complete) was moved to Block II as a contract line item at no extra cost to the government. The contract line items work completed in for Block I were then closed. The contractor has not been relieved of meeting any of the system's requirements.

Question. How did we get into the posture of having a number of large computer acquisitions underway for the same facility which had incompatible sizing and communications, security, and wiring standards?

Answer. Computers were sized to suit mission needs. A standard computer size would not be cost effective since some missions require less capacity than others.

With respect to communications, we have decided to use the Transmission Control Protocol/Internet Protocol (TCP/IP) as outlined in our report on Communications System Segment Replacement (CSS-R) dated 15 November 88. AFSPACECOM will develop a transition plan for conversion to the International Standards Organization/Open System Interconnection (ISO/OSI) protocol after the Cheyenne Mountain programs have been completed and the standard becomes most mature.

On the subject of security, we have applied DOD STD 5200.28 and AFR 205-16 to define security requirements for each Cheyenne Mountain Upgrade program. Since each upgrade computer system being installed supports different missions, the security features vary significantly.

Lastly, with respect to wiring standards, the present Command and Control System (CSS) Tech Control was built in 1985 using standards widely in use in the Cheyenne Mountain Complex (CMC) at that time. We planned to modify the existing facility to the more modern standards prior to CSS-R installation. In the press of operational necessity, we failed to follow our own standards while performing circuit maintenance actions. We will fix these anomalies as we prepare the facility for CSS–R installation.

Question. What is your plan to fix these serious problems?

Answer. In order to perform a more realistic assessment of Cheyenne Mountain Complex (CMC) message loading requirements, the recently approved Granite Vista II scenario, which simulates a realistic attack on North America, will be used for communications system sizing and test. To date our analysis indicates the new programs will handle the Granite Vista II message load. In conjunction with that, we are working on operational concepts, message prioritization, and queuing schemes which more efficiently load the system.

As far as standard computer communications protocol is concerned, we are going to complete the CMC upgrades using the Transmission Control Protocol/Internet Protocol (TCP/IP). Sometime in the future, as International Standards Organization/Open System Interconnection (ISO/OSI) matures, we will implement it according to the AFSPACECOM transition plan.

We believe the security requirements for each upgrade are realistic and achievable.

Air Force Space Command (AFSPACECOM) is implementing a plan to standardize CMC interfaces. Prior to Communications System Segment Replacement (CSS–R) installation, Air Force Communications Command will update the existing circuits as necessary. AFSPACECOM will remove excess cables, reconfigure technical control, and relocate equipment to reduce cable congestion.

Question. Which of these problems is caused by poor requirements definition and lack of planning by AFSPACECOM and which are caused by poor acquisition management by Air Force Systems Command?

Answer. Your question implies that these problems were caused by one or the other. While Communications System Segment Replacment (CSS–R) and Space Defense Operations Center (SPADOC) have experienced problems both in requirements definition and interpretation and over-aggressive acquisition schedules, both programs are improving. CSS–R is now back on track SPADOC 4A is expected to achieve initial operational capability (IOC) in May at approximately the same time SPADOC 4B has its critical design review. At that time, we should have clear indications that our problems in that program have been solved. The other three programs, Granite Sentry, Survivable Communications Integration System (SCIS) and Command Center Processing and Display System Replacement (CCPDS–R) are on schedule. In fact, the Granite Sentry Air Defense Operations Center achieved IOC on February 28, 1989. The contractor recently passed the first of three demonstrations and successfully completed the critical design review for the message distribution portion of the system.

Question. Provide for the record a detailed breakout by appropriation, fiscal year, and line item showing funding since inception, planned through completion, and in total for the Cheyenne Mountain upgrades by project.

Answer. The following breakout provides by appropriation, fiscal year and line item to completion, as reflected in the FY 1990–91

Amended President's Budget, the total dollars for the Cheyenne Mountain Upgrades by project:

PE 12310:	
CSSR	275.8
SCIS	137.2
Granite Sentry	195.5
PE 12311/12310	(1)
SPADOC	447.1
PE 12436/12310	(1)
CCPDS-R	269.2
Total	1,324.8

[1] Consolidated into 12310 in 1990.

	Prior	Fiscal year— 1984	1985	1986	1987
PE 12310:					
CSSR:					
3600	5.2	21.2	20.6	37.8	19.6
3080	0	1.5	13.5	9.2	.6
3400	0	0	0	0	2.1
SCIS:					
3600	0	0	.3	6.1	13.4
3080	0	0	4.3	7.8	9.7
Granite Sentry:					
3600	0	0	0	0	7.0
3080	0	0	0	0	1.5
3300	0	0	0	0	0
3400	0	0	0	0	0
PE 12311: SPADOC:					
3600	26.1	5.9	31.3	29.8	35.6
3080	25.9	23.6	22.9	21.1	5.1
3400	0	0	5.5	0	0
PE 12436: CCPDS-R:					
3600	0	3.0	6.0	12.6	15.8
3080	0	0	0	0	1.0

	Fiscal year— 1988	1989	1990	1991
PE 12310:				
CSSR:				
3600	26.7	38.5	47.5	19.7
3080	0	0	0	0
3400	2.4	3.0	1.0	1.0
SCIS:				
3600	11.8	12.4	4.2	4.8
3080	9.0	9.3	0	0
Granite Sentry:				
3600	17.3	18.4	12.8	23.6
3080	4.7	4.4	3.7	6.9
3300	5.9	0	0	0
3400	0	1.5	2.0	2.3
SPADOC:				
3600			18.2	18.5
3080			16.0	0
3400			0	0
CCPDS-R:				
3600			35.2	36.2
3080			15.9	0
PE 12311: SPADOC: [1]				
3600	29.1	26.4		

	Fiscal year—			
	1988	1989	1990	1991
3080	0	5.6	......	......
3400	0	0	......	......
PE 12436: CCPDS–R: [1]				
3600	29.1	26.4	......	......
3080	0	23.6	......	......

[1] Consolidated into 12310 in 1990.

	Fiscal year—			To complete
	1992	1993	1994	
PE 12310:				
CSSR:				
3600	4.7	0	0	0
3080	0	0	0	0
3400	0	0	0	0
SCIS:				
3600	6.0	18.7	19.4	0
3080	0	0	0	0
Granite Sentry:				
3600	17.1	25.1	7.5	......
3080	7.7	7.2	10.2	0
3300	0	0	0	0
3400	2.8	2.8	3.1	0
SPADOC:				
3600	19.4	19.4	19.3	49.2
3080	0	0	0	0
3400	0	0	0	0
CCPDS–R:				
3600	33.7	22.5	2.3	0
3080	5.9	0	0	0

Question. Explain the wiring problem and what the Air Force is doing to fix it.

How long has this problem been known?

Why did the Air Force wait until FY 1989 (after the Committee raised the issue) to identify funds fo fix the problem?

What actual changes have you made in the computer acquisition upgrade contracts so far for wiring compatibility?

Answer. The wiring in Tech Control, the semiautomated maintenance complex, is so extensive that there is not enough physical room to install the new CSS-R capability. This was recognized in 1985 and money has been budgeted to solve the problem. The old wiring will be removed in 1990 to provide the required room to install CSS-R by 1991.

Question. The SPADOC upgrade recently flunked the "critical design review." What impact does this have on your need for SPADOC funds, either appropriated to date or currently requested? Explain for the record the SPADOC acquisition strategy, provide specific milestone dates, and funding for FY 1989 and FY 1994.

Answer. We require all funds appropriated by or requested from Congress. Block B will be completed with current funding. We will require additional funds to contract for and complete Block C.

The following are milestone dates for SPADOC: Block A—IOC May 1989. Block B—CDR April 1989 FQT October 1989 April 1990;

System Test/IOT&E March 1990 January 1991; IOC March 1991.
Bock C—Contract Award 1991; IOC 1994.

The original acquisition strategy was an overlapped phased approach to allow us to maintain contractor expertise and deliver additional capabilities as early as possible at an acceptable level of risk. The plan was to award each follow-on block 6 months after the previous block's CDR. Based on our poor experience with Block A of SPADOC, Block C will not be awarded until after successful completion of Block B.

Funding for FY 1989 to FY 1994 is as follows:

[In millions of dollars]

	Fiscal year—					
	1989	1990	1991	1992	1993	1994
3600 (22.5)	18.4	18.5	18.0	18.0		23.9
3080 (5.6)	16.0	0	0	0		0

Question. What unfunded requirements exist that are necessary to fix the many problems disclosed by GAO, such as wiring and incompatible security and communications standards? How does the Air Force plan to fund them?

Answer. The problems identified by the GAO were already known by the Air Force and being acted upon. For example, the plan to prepare the Tech Control area for Communications System Segment Replacement (CSS–R) installation in 1990 and IOC in 1991 was already in process when the GAO began its investigation of CSS–R. Since this a problem with the current Cheyenne Mountain infrastructure, command operations and maintenance funds have been identified and budgeted for the clean-up effort.

With respect to security requirements, we believe the contractors felt the specified level of security could be achieved with a good design. An operationally acceptable security system has been developed and accepted by the user. This design will be implemented within the current program budget.

Cheyenne Mountain systems will continue to use the current communications protocol standards until some time after the new Cheyenne Mountain Complex (CMC) programs are delivered and International Standards Organization/Open System Interconnection (ISO/OSI) matures as a new standard.

At this time there are no unfunded requirements related to these problems on these programs.

WEATHER AND HURRICANE RECONNAISSANCE

Question. The Air Force announcement on February 15th that since NOAA is no longer interested in assuming the mission of the weather and hurricane reconnaissance aircraft at Kessler AFB, the Air Force will place sufficient assets at Keesler to ensure hurricane reconnaissance coverage is somewhat appreciated, but ironic. When the Air Force tried to shut down this mission several years ago, I maintained and proposed that the Reserves should keep this mission because they had the experience, and continuity, and the Reserves can usually do it cheaper than the active forces. The Air Force opposed me on this proposal and was able to convince the other body that the activities should lead the way in this mission with a litle help from the Reserves. In any event, I am glad to see the Air Force is headed in this direction again.

Specifically, your announcement on February 15th said that you are going to place sufficient assets in the Reserves at Keesler to ensure hurricane reconnaissance coverage for the Atlantic, Gulf of Mexico and Caribbean. As you know, this Subcommittee has directed the Air Force over the last two years to maintain at least 12 WC-130s and a flying program of at least 1600 hours in support of hurricane reconnaissance coverage. How do the specifics of your announcement on the 15th compare to these present requirements? Provide details for the record.

Answer. The announcement of February 15th proposed an Air Force Reserve unit composed of eight WC-130 aircraft and 1000 hours of storm reconnaissance flying time. The commitment in the National Hurricane Operations Plan is for five sorties per day, which can easily be accomplished with eight WC-130s. The 1000 hours of storm time is adequate when compared to the actual time flown for storm reconnaissance in the Atlantic, Carribean, and the Gulf of Mexico areas. The Air Force and DOC together have averaged 933 flying hours per year for the last ten years. The Air Force flying hour program has averaged only 808 hours per year. This proposal increases the reserve unit at Keesler AFB by 2 PAA and 2 BAI WC-130s and deactivates the active unit.

Question. What are the Air Force plans for funding this important hurricane reconnaissance mission beyond FY 1990? Be specific for the outyears.

Answer. The hurricane reconnaissance mission is funded as currently organized (8 WC-130s active, 4 WC-130s reserve, and 1600 total storm hours) through FY 91/2. We anticipate the reserve unit will take over the mission in FY 91/3. Funding is as follows:

[Then year dollars in millions]

	Fiscal year—				
	1990	1991	1992	1993	1994
FY 1990 PB:					
Active	14.145	6.681	0	0	0
Reserve	3.811	2.388	0	0	0
Total	17.956	9.069	0	0	0
FY 1990 PB with new plan:					
Active	14.145	6.681	0	0	0
Reserve	4.728	10.564	14.371	14.771	15.239
Total	18.873	17.245	14.371	14.771	15.239

Question. I was never convinced that the Air Force should get out of this business. As you recall, during the height of Hurricane Gilbert last August 13th through the 16th, news reports detailed the Soviet Union's involvement in hurricane reconnaissance. At one point, during the storm our Air Force aircraft were denied airspace into Hurricane Gilbert because of Soviet presence.

Has the Air Force looked at what the Soviets are doing in this area; what aircraft assets they are using in these missions; the impact on our military mission and presence in our own backyard if we stop doing this and the Soviets are the only ones supplying this data to our allies in the region; what new landing or access rights the Soviets have acquired in the region since they began these weather recon missions?

Answer. Yes, the Air Force has looked at what the Soviets are doing in this area. The Soviets currently have two aircraft, an IL-18D/COOT and an AN-12/CUB, which have been used. When deployed to this region they stage out of Cuba and should not require any new landing or access rights for these missions. The Air Force is maintaining this capability by assigning the mission to the Air Force Reserve. In addition, the Department of Commerce has two P-3 aircraft which fly operational hurricane missions when storms are approaching the United States or passing near countries, such as Cuba, which will not allow fly over by military aircraft. Hurricane data can be adequately supplied by the United States to our allies in the region using either of these hurricane reconnaissance capabilities.

Question. This Subcommittee has provided funds in the past for the Improved Weather Reconnaissance System to be placed in the WC-130s at Keesler. Will this continue? How many aircraft have or will be getting this new system?

Answer. The Improved Weather Reconnaissance System (IWRS) modification will continue. The eight aircraft scheduled to retain the hurricane mission will be modified. Ten IWRS sets have been purchased. The extra two will be used for training and spares.

Question. Provide the personnel and equipment breakdown for each WC-130 under the Air Force's new plan.

Answer. Personnel and equipment are not designated by each aircraft in this case. The increase in reserve personnel is due to the deployment mission being assumed under the new plan. To date, the reserves have augmented the actives during deployment but were not responsible for a reserve unit deployment. The personnel and aircraft numbers change as follows:

	Aircraft		Personnel	
	PAA [1]	BAI [2]	CIV	MIL
Current Organization:				
Active	6	2	36	341
Reserve	4	0	62	56
Total	10	2	98	397
Proposed Organization:				
Active	0	0	0	0
Reserve	6	2	145	193
Total	6	2	145	193

[1] PAA: Primary authorized aircraft.

[2] BAI: Backup aircraft inventory.

Question. Provide a detailed timetable regarding aircraft and personnel adjustments for this plan.

Answer. A detailed timetable regarding aircraft and personnel adjustments is unavailable at this time. The Air Force Reserve is currently preparing a proposed transfer plan which will address manning, training, funding, and support necessary to conduct this mission as outlined in the February 15th announcement. Although funding and total aircraft with personnel numbers have been supplied, the actual detailed timetable for these changes has yet to be developed.

Question. Provide a detailed breakdown of the costs associated with this new plan, including any additional costs over the currently proposed FY 1990 budget.

Answer. The costs associated with this new plan are as follows: (All costs are in addition to FY 1990 budget.)

1994	Fiscal year—				
	1990	1991	1992	1993	1994
TOA (millions):					
$3,010	0.917	1.112	1.135	1.128	1.158
$3,700	0	1.788	2.414	2.476	2.542
$3,740	0	5.276	10.822	11.167	11.539
Total	.917	8.176	14.371	14.771	15.239

[CLERK'S NOTE.—End of questions submitted by Mr. Livingston.]

Mr. MURTHA. The Committee will now adjourn while we clear the room, and then we will go right into a classified session.

AFTERNOON SESSION

INTRODUCTION

Mr. MURTHA. The Committee will come to order.

General Welch, one thing that I wish you would answer for the record is what would happen to the Air Force if the budget cuts that I have been hearing about came to pass? For instance, what would happen if we went from $292 billion down to $285 billion in defense outlays?

It is obvious there is going to be tremendous pressure on the Congress since you sent over the budget with some growth, to reduce your budget. But it is going to be less than that so we have to have some indication in our negotiations with the budget people about what the impact would be if the figures were seriously reduced, and I think it is important that you get that into the record. If you will, answer that for the record.

[The information follows:]

The further reduction of the DOD Budget to $292 billion or as low as $285 billion would substantially impact Air Force programs. The DOD Budget has declined for four consecutive years. Further cuts could lead to reduced force structure or a return to a hollow force. It could also cause a reduction in procurement levels or modernization programs, or both. The specific impacts cannot be determined at this time without further analysis from the Air Staff.

Mr. MURTHA. I appreciate what you said about Cheyenne Mountain, because we were unhappy with the previous witness, and I now plan to conduct another hearing later on. We will ask Mr. Livingston to go out and look at that whenever he can. We were disappointed that the witness didn't seem to be right on top of that issue.

C-17 AIRCRAFT

Let me ask you about the C-17. We were out there visiting the C-17 program and it was not on track because the software was falling behind. The latest report we have is that Honeywell has been given until next week sometime to straighten out or they are out of action.

Is that right, Mr. Secretary?

Secretary McGOVERN. That is my understanding. We are trying to keep a hands-off approach with McDonnell on what they do with their subcontractors. We just want them to adhere to the contract.

I understand the CEOs from McDonnell Douglas and Honeywell are going to get together next week to decide whether Honeywell has bit off more than it can chew.

LEVEL OF AUDITS AND INVESTIGATIONS

Mr. MURTHA. One of the things talked about in discussions with the program manager and with the people that run the program for McDonnell Douglas, is concern about the number of investigators and auditors. I got the impression there is probably more of an adversary relationship today than there ever was before and I am not sure that is good for the program. We are talking generally now about the program.

Do you see the same thing, Mr. Secretary? Do you see an adversarial relationship between contractors and the Air Force auditors and investigators in trying to manage these programs?

Secretary McGOVERN. No, I have not heard that and I think I have been around most of the defense contractors over the last year. As a matter of fact, I think that the Air Force gets great marks over the other Services in its relationship with contractors. We have never tried to accuse them of breaches on the front page of The Washington Post or The New York Times. We have been usually against trying to defer progress payments.

On the auditing side, all contractors—and understandably—they hate auditors, and I am one of a few that believe we probably have too many. I know that the nominee for the Secretary of Defense really wants to take a look at changing the way we go about our auditing practices, so that good performance may result in some formula for shifting those auditing resources to areas where you have more problems.

Mr. MURTHA. What they are talking about was the fact that the laws and regulations—this was not only laws made by Congress but regulations made by the Defense Department—that they were hesitant to deal upfront with the Air Force.

For instance, we have tried to have hearings, and, of course, contractors won't say a word in hearings. Everything is all right. I wonder if you as a Secretary are not getting complaints because they hesitate to complain to you. I know that the reform package we passed is one thing, the regulations that the Defense

Department sends down are something else. You are saying that you have found when you go out into the field that the contractors have no complaints about the amount of regulations and number of auditors and so forth?

Secretary McGOVERN. No, Mr. Chairman. I don't even need to hear from the contractors to know that they complain about being overregulated and overaudited, no question. They clearly are overregulated and overaudited. That is not peculiar to the Air Force.

Mr. MURTHA. What I am trying to do in the procurement system itself is get on the record some suggestions you may have about how we can alleviate the situation.

For instance, one contractor complained about the audits afterwards and the number of people that were auditing their program.

Obviously we have to have some accountability but how do we get a balance here? Do you have some suggestions you can make to this Committee?

Secretary McGOVERN. Yes, sir. We have done a review of what we view as legislative and regulatory impediments to sound management in the defense procurement system, and that was not the fault of anybody. It is just the fault of various procurement reform initiatives being laid upon an already very regulated industry as a result of the waste, fraud, and abuse issues that have been brought up over the years.

It is now time, I hope, to eliminate some of the duplication and redundant regulations and other legislative proposals which while well intentioned have caused us to have to stretch out programs.

Mr. MURTHA. Have you also talked to AIA which I understand is in the process of doing a study where they will make recommendations?

Secretary McGOVERN. That would be wonderful. We would love to get the support of the defense industry in unison. We are trying to get that. It is probably one of the most difficult things that we have ever been able to undertake.

They all differ in their approaches to reform.

Mr. MURTHA. Well, I have asked them to send me that study.

Even though we don't have jurisdiction over a lot of these reforms, we will talk to the Armed Services Committee because I am running into this more and more and I think it is increasing the cost of the final product.

I am not sure how fast we can go under the circumstances with the present problems we have, but it seems to me if your contractors aren't talking to defense people and they feel a hesitancy to work together, you are going to get more buying up of contracts.

You are going to have instead of cooperation, which adds to efficiency, you are going to have less cooperation and more running around the periphery trying to do things.

Secretary McGOVERN. I agree. I think the lesson that we have learned over the last few years is if you agree that public opinion indicates a dissatisfaction with the way defense resources are being managed, it is clear to me that the public makes no distinction between the Pentagon and the defense industry in that perception, and it is in all of our interests, I think, those of us involved in this, to try to work our way out of this public perception problem together with the industry.

So we are trying to make every effort to do that.

B–1B PROGRAM

Mr. **Murtha**. Let's go to the B–1 program. We handled the B–1 program entirely different from the B–2. We had a cost ceiling, an overall ceiling, and Secretary Weinberger was absolutely committed to keeping the program under $20.5 billion and he did that.

If we had been operating under a similar basis, would the B–2 be less of an airplane? Would we have a lot more problems in the end? What is the difference in the two programs and did the changes that you have made in the B–2 program, if you had made those in the B–1 program, would you eventually have ended up with a better airplane and maybe long-term cheaper cost?

General **Welch**. We couldn't have used the B–1 approach with the B–2. We had already invested $7 billion in the B–1, so we had $7 billion worth of R&D and engine development behind us and we were pretty comfortable that we were at that point in the B–1.

We had been flying four airplanes for a number of years. So that when we started the B–1B program, the $20.5 billion is on top of $7 billion already invested.

So it was a different kind of situation. It would not have been possible to build any kind of useful B–2 with the schedule pressures and the cost ceiling pressures that we lived with on the B–1.

The other side of your question is would we have been better off in the B–1 with somewhat less cost and schedule pressure. It would be easy to say yes, but I am not sure that is the right answer because we did produce that airplane at a high rate. So we did get that airplane for a very good price because we produced at a high rate.

Now, in retrospect, when we look at the things that we need to do to the B–1 in order to give it long-life effectiveness, it does very well today, but it needs some things to maintain that effectiveness over the years.

I can't find an awful lot that we could have done earlier on the B–1 approach. Let me expand a little bit on that.

The basic problem on the ECM that we are currently dealing with, there are probably two basic problems. One is that we bit off more than we could chew. We set out to build a system that had some specifications that nobody knew how to build. SAC said, "I want the airplane to jam from ——— and the contractor said, "Yes, I know how to do that," and the fact is the contractor doesn't know how to do that. We don't know how to do that. SAC doesn't really need all that.

When we get all finished with what we now think we need to do to the B–1 ECM in order to have an effective system that we will be happy with for years to come, there really won't be a lot of wasted effort from what we have already done.

What I am saying is that the approach that we are using builds on everything we have already done so it is not as if we made a lot of mistakes and we have to write those off. We have been through a lot of criticism and agony we didn't need.

Mr. **Murtha**. But you couldn't have devised the R&D in the B-2 program in the B-1 program?

Secretary **McGovern**. No, particularly under the congressionally mandated IOC date.

General **Welch**. Absolutely, we don't have that.

Mr. **Murtha**. I am thinking of other programs that we might be able to run the same way we ran the B-1 program. There was a public relations value to running that B-1 program that way because you remember the cost escalation everybody talked about and this kept that down.

General **Welch**. At the present time with the core system that we have a high confidence in we can cover ——— and we can cover a significant part of the remainder.

We will be able to complete that core system within the $20.5 billion.

So when we get done with the core system, we will have a system that increases the penetrability by about ——— over the system that we talked about last year. So that is a marked improvement.

The additional thing that we need to do, we need to put an independent radar warning system in the airplane and it really is based on the F-15 system; it is a proven system.

I have talked to the crews personally and the crews who operate the airplane feel very strongly that what they need in addition to the core is that RWR independent system. That is really the extent of what we plan to do with ECM to that airplane in anything like the near term. The RWR system and deferred support equipment will run us $380 million over the cost cap.

So I think to put that in context when we have improved the ECM to the point that we will be satisfied that we have long-term penetration capability, we will have spent $380 million over the cost which is not—would not indicate that we would have done a lot better if we had used a different approach on the B-1.

PRESIDENT'S AIRPLANE

Mr. **Murtha**. Talk about the President's airplane. Where do you stand with it?

Secretary **McGovern**. We are way behind schedule. Boeing has been a major disappointment to us. The cost will remain the same, but the schedule is uncertain.

Mr. **Murtha**. You are saying they are losing money?

Secretary **McGovern**. They are losing money. They totally misunderstood what the wiring configuration should be.

Now, I am told—and I haven't drawn any conclusions myself—that a large part of that was a result of some very substantial changes required by the White House, but it is a very complicated system to which Boeing's performance thus far as far as I am concerned is totally unacceptable.

So we have a lot of people working that issue at the moment.

Mr. **Murtha**. Will they lose money or will they charge us for the mistakes that they have made?

Secretary **McGovern**. They will lose money.

General **Welch**. It is a fixed-price contract.

ELECTRONIC COUNTERMEASURES

Mr. **Murtha**. In Defense News dated Monday, February 13, General Randolph says the electronic countermeasures work we do is a disaster. Randolph told a gathering of industry executives and Air Force officials:

> Software, the pacing technology in fighters, is an Achilles heel. On software schedules, we have a perfect record. We haven't met one yet.

What do you say to that, Mr. Secretary?

Secretary **McGovern**. I don't know that I would go as far as to characterize our ECM efforts thus far as a disaster. They are clearly a major disappointment.

It is a very complicated area, as you know, to which a lot of brainpower has been put over the years to try to study. I think that we are closer now at least to a roadmap to solving some of those problems trying to get systems integrated. You are aware of those programs. Criticizing where we have been is easy. Coming up with solutions as to where we need to go, which is part of General Randolph's responsibility, is a little more difficult.

Mr. **Murtha**. But he is your man for Air Force systems acquisition.

General **Welch**. I think that is a very useful thing for him to say to that audience because it is a fact that in the past we have not treated ECM requirements with near the sophistication and understanding that we have airplane or missile requirements.

A good part of the problem has been the ECM industry, but I have high confidence that McDonnell Douglas or Northrop or Lockheed or anyone else, if they tell us they can design and build an airplane, I have high confidence that those companies can design and build that airplane.

I have very little confidence if the ECM industry tells us that they can build this defensive system or that they have actually determined that they know how to do that which now imposed on General Randolph a tremendously increased burden to make judgments about whether or not what the contractor is telling him is a credible story.

We don't have that problem building airplanes and missiles, but we certainly have that problem building ECM systems.

Secretary **McGovern**. And software integration.

C-17 AIRCRAFT

Mr. **Murtha**. Jack Ingall says:

> I don't think the Air Force is taking enough responsibility for complete program management. That is a big part of the problem.

That is what he says.

The C-17 is a major program, a top priority of all the Services.

The Air Force official at the C-17 plant, was hesitant to talk about Honeywell and I understand that McDonnell Douglas, as prime contractor, is responsible. But two years ago, they recognized they had a software problem. Here is a major system and we have got a software problem and it is still floundering.

They told them about it. They didn't have enough people involved in it. They didn't increase the number of people significantly right away.

How do we stop this kind of delay? How do we get on top of it? Your people and McDonnell Douglas recognized it and went to Honeywell; nothing happened. Isn't there some leverage we can use to get this done? Isn't this the responsibility of the Air Force?

Secretary McGOVERN. Indeed.

We ought to be held accountable. We tried to impose some of that accountability and responsibility by the way we contract. As you may know, our development contract on the C-17 is a $4.2 billion target price, and from target to ceiling is a 80-20 share so anything over the target price McDonnell Douglas pays 20 cents on the dollar. Unfortunately, we pay 80 cents on the dollar. In addition to that, once they go over ceiling, then McDonnell Douglas will bear the cost and Honeywell——

Mr. MURTHA. They bear 100 percent of the cost.

Secretary McGOVERN. They bear 100 percent over ceiling. That is our best way, Mr. Chairman, of trying to enforce accountability.

Mr. MURTHA. I would agree with that, but it is not working. I know they had a reorganization of McDonnell Douglas. I know McDonnell got 5,000 managers in a big hangar and he started talking to them and I guess he told them they had to do better.

Everybody recognized they had a software problem. The software problem is now holding up the schedule, and—in other words, even though we had a cost incentive built into it, even though McDonnell Douglas is penalized, that doesn't solve the problem.

Secretary McGOVERN. I think that while it may have taken us too long to see the problem, I think we are at least doing the right thing.

First of all, we are holding the prime contractor's feet to the fire. He is ultimately responsible. We don't want to get into a situation where we dictate to prime what he should do with the subcontractor and then we, the Air Force, are held accountable for what he signed up to in the first place.

It is true McDonnell Douglas has a capacity problem. They acquired the B-1 facility in Columbus. We think today that at worst case, we have a slip of somewhere on the order of four months, but that our IOC on the aircraft itself will not slip. I am not sure that we have a huge schedule problem.

Mr. MURTHA. The latest information we have is that Honeywell has until Monday to get this straightened out.

How can you estimate what the slip will be when you don't know for certain who will be doing the software work?

Secretary McGOVERN. Honeywell has until Monday to give McDonnell Douglas a plan for solving this problem.

Mr. MURTHA. I was under the impression that they may go to another contractor.

Secretary McGOVERN. Then I would think we would have more of a slip than four months. Maybe they can solve this quicker.

I have to agree with you. I think you have penalized them. It is not to their benefit to allow this to go on, but it didn't work. That is the thing that worries me.

I don't know what the solution is. It did not work in this case. McDonnell Douglas didn't get on them early enough to cause them to make any progress. That is what worries me.

General WELCH. McDonnell Douglas has been intensely focused on this for a year. They have finally reached a point where their confidence is shaken to the point that they are telling Honeywell, "You either have to produce a plan or we are going to get another contractor."

But the business of throwing more people at a software problem doesn't always help very much. You can fill a room with 100 orange tanks and you probably aren't going to get much done. We have a terrible problem in this country with software engineers who are competent to do this kind of work.

Mr. MURTHA. Shouldn't a company the size of McDonnell Douglas and the Air Force know this? Shouldn't you know that the problem of software in this particular system is going to be complicated and take longer?

Secretary MCGOVERN. The short answer is yes. It is not unique to the Air Force on software integration. It is unique to the software commercial sector as well that this is the long pole in everybody's tent; but, yes, we should.

Mr. MURTHA. We also have information that LTV, Delco and Lockheed are also behind schedule on the C-17; is that accurate?

General WELCH. Yes, that is in the fabrication business. They are behind——

Mr. MURTHA. Delco is software, but the other two are fabrication.

General WELCH. Yes, sir.

BETTER COOPERATION WITH INDUSTRY

Mr. MURTHA. I am getting back to one of the questions we asked in open session about how do we get better cooperation, or what do we need in order to get better efficiency out there in the industry? I have to agree on the surface it looks like you give them a price and you tell them if you don't meet it, you are penalized and yet it didn't work in this case. Is it so complicated—for instance, we were talking about Boeing being so bad.

Mr. DICKS. I want to revise that record.

Secretary MCGOVERN. Just on that particular issue—it isn't just that particular issue.

Mr. MURTHA. But you don't see any better way of doing it, in other words, the price penalty is the best way to do it?

Secretary MCGOVERN. No. I think there are some other ways, but I have noticed, as you have, Mr. Chairman, that once you—once the penalty takes the form of money lost, that one gets their attention.

The other thing, though, that we need to institute on a broader basis which we have already started is to provide some linkage between past performance on various contracts and future contract awards. So you can be assured that in our source selection processes that poor performance is going to be weighted very heavily as we look towards a new source.

Obviously, if we had the luxury, Mr. Chairman, it would be nice to be able to dual-source the C-17, but as you know, that is very impractical.

Mr. MURTHA. It is an interesting point your man in the field seemed to think at some time you have a problem when we dual-source because he is running into quality problems with competition in some areas. Some of the contractors in particular, tell me they are concerned that dual-sourcing is not always the answer.

Secretary MCGOVERN. No, it is not.

Mr. MURTHA. They get the low bid and they are held up by arguments and court decisions and so forth and we are all struggling looking for a way to solve this problem.

Secretary MCGOVERN. Well, competiton clearly has its penalties, but by and large, competition has been a major success and competition—when we award contracts, Mr. Chairman, I think there is a general feeling that we always award to the low bidder and that is just not the case, as you know, but a lot of other people don't know.

Mr. MURTHA. Yes.

Mr. Miller?

AUDITING INDUSTRY

Mr. MILLER. Thank you, Mr. Chairman.

A few minutes ago, there was a discussion about auditing and as I understand, Mr. Secretary, you had mentioned you felt the industry is overaudited.

Secretary MCGOVERN. I basically said that the industry feels that the industry is overaudited.

Mr. MILLER. That is not your feeling?

Secretary MCGOVERN. I think it varies from contractor to contractor within that industry.

I would like to—hopefully we can devise a formula, however, where we use those auditing resources more efficiently by rewarding those contractors who are performing well and, therefore, have indicated by their performance that they don't need the auditing overhead that we impose on them.

Mr. MILLER. A few years ago, we asked about auditing in other nations where we are procuring. I understand we sent auditors to attempt to audit the foreign industries that were working for us, and they found that they are not having much luck at it.

Do you have any information that you can tell us about this as to what kind of bookkeeping may be kept in other nations? Because we do buy items from other nations. Are we auditing those particular industries the same as we are auditing those in the United States?

Secretary MCGOVERN. I will have to provide that, Mr. Miller. I should be more informed, but I am not. It is an interesting point.

Mr. MILLER. I appreciate it very much.

[The information follows:]

The Defense Contract Audit Agency (DCAA) has primary responsibility for audit (pre-award and post-contract award). Air Force contracts overseas may be audited by either DCAA auditors or host nation auditors. Audit policy in DODD 5105.36 holds that U.S. contracts or subcontracts awarded to foreign firms shall generally be audited by DCAA. This ensures audit according to U.S. cost principles. However, many programs are now using the services of host nation auditors who may have greater familiarity with a foreign company's accounting practices. Use of host nation audit is typically spelled out in program memorandums and in country-to-country Memorandums of Agreement (MOAs). Host nation audit policies and capabilities vary from country to country.

Increasing defense business with foreign firms has also led the Air Force to enter into advance agreements such as for the allocation of independent research and development, and bid and proposal (IR&D/B&P) costs. For such agreements, either DCAA or host nation audit may be used depending upon audit capabilities.

TRAFFIC COLLISION AVOIDANCE SYSTEM

Mr. MILLER. I would like to turn your attention to traffic alert and collision avoidance systems. I understand that the FAA has demanded that they be installed on commercial airlines. Do we have that type of system on our military aircraft?

General WELCH. No, sir.

Mr. MILLER. Will it be necessary—because I understand that the FAA will also have a regulation where commuter aircraft will have the same type of equipment. They are attempting to get some 1,200 units on commercial aircraft in the near future, at least by 1991, and then have it evaluated, and I understand that there are three kinds of TCASs.

If you have anything that you can enlighten us as to what we are doing with our military aircraft, it would be very helpful to the Committee.

General WELCH. I think I would have to provide that for the record. I am not familiar with the collision avoidance program as it pertains to any military applications. That doesn't mean we don't have something going on in the transport world. I will have to provide that for the record.

[The information follows:]

There are no active validated requirements for TCAS or any other collision avoidance systems in the Air Force. TCAS provides little benefit to military readiness posture. DOD aircraft are all equipped with Mode C altitude encoding transponders and would provide necessary avoidance information to TCAS equipped civil aircraft. DOD has and will continue to examine cost effectiveness of TCAS for different types of aircraft and voluntarily equip where appropriate.

Mr. MILLER. While we are in closed session, I guess OTA has made a study of this, the Office of Technology Assessment.

To my knowledge, it has not been released yet, but it should be in the very near future——

Secretary McGOVERN. For the commercial——

Mr. MILLER. For the commercial commuter airlines. My question really is what kind of a cost can we look forward to if all of the military aircraft need this TCAS system?

General WELCH. Of course, my immediate sensing is that such a system would be impractical on a fighter aircraft because we intentionally fly them at close proximity to other flights all the time, but there may be something going on transports.

I will have to look into that.

[The information follows:]

Estimated costs to install TCAS on the entire DOD air fleet and maintain its operation for a twenty-year life cycle are in excess of $2.5 billion.

Mr. MILLER. I can visualize though they are also flying and crossing commercial lines and to protect the commercial planes also, I would think that we would have to have this on the military if the

FAA is so involved at the present time to get this accomplished. If you could give us some report on that, I would appreciate it.

Thank you, Mr. Chairman.

[The information follows:]

DOD aircraft are all equipped with Mode C altitude encoding transponders and would provide necessary avoidance information to TCAS equipped civil aircraft. DOD aircraft that are most similar to civil aircraft with TCAS fly almost exclusively under instrument flight rules (IFR) air traffic control which provides traffic separation. DOD has and will continue to examine cost effectiveness of TCAS for different types of aircraft and voluntarily equip where appropriate.

STRATEGIC WARNING

Mr. Dicks. I'd like to discuss strategic warning time. We were told that SAC was going to have ——— warning. They said, "You don't have to worry about ———. That was General Doyle.

If the Soviets are taking steps to prepare for war, we would have enough evidence ——— ahead of time, that we would be able, in that time frame, to make a decision to move the Rail Garrison MX out on the rails.

He said, "This is the intelligence community estimate of how much real warning time we will have."

Secretary McGovern. The point is that we don't need ———.

Mr. Dicks. I understand that. They are saying this is what they told us. You don't have to worry about ———. We are going to have ——— advance knowledge if the Soviets are preparing for a strategic nuclear war, therefore—I am not sure they quite said it that way—therefore, this debate over ——— is meaningless.

Is that accurate? I assume it is.

Secretary McGovern. It is not accurate.

Mr. Dicks. We have asked the intelligence community to brief us on it.

Mr. Murtha. What the General said was that we have enough information gathering at this point that he felt confident that he would be able to recognize at least ——— in advance———

Mr. Dicks. The President would be able to recognize.

Mr. Murtha. He would be able to recommend to the President ——— in advance if the Russians were getting ready to go across the line and start a mobilization. That was his estimate of the situation.

General Welch. I think we get into the difficulty of what is strategic warning. What Bill Doyle is talking about is if the Soviets go through the classic Soviet exercise style build-up and generation, then we will clearly see ——— before the attack that they are making those kinds of preparations.

I don't know how relevant that is to the ——— because none of us can imagine how a crisis might develop.

So if the crisis is that for some reason the Soviets have decided to prepare for a strategic nuclear attack and to generate their forces and do the things they have to do, they ———.

So there are a number of things that they do that we know about the minute they do it and it is a very reliable indicator. ———.

Secretary McGovern. ———.

General Welch. ———.

So, there are a lot of things that develop over that period of time. ——— is perfectly reasonable, but my point on rail garrison is you don't need that kind of thing to decide to deploy it, so the use of the word "strategic warning" is a misnomer.

If I ask everybody in the room today does anybody believe they are going to attack in the next 24 hours, they will say no.

If somebody says yes, that is enough concern. You don't need strategic warning. You need some reason to believe that there is a developing crisis that would make it prudent to put those things on the rails.

Mr. Dicks. I remember so vividly the window of vulnerability and the idea that a bolt-out-of-the-blue was possible and that that would have a devastating effect on our land-based leg. You are saying that you are no longer worried about that?

General Welch. Look what we have done since then. I agree in the mid-seventies that we had that concern, but since then, we have tripled the number of alert weapons on bombers, we have doubled the capability of every B–52 by putting cruise missiles on the B–52s.

We have deployed the C–4 and we will be deploying the Trident D–5 this year. We have increased the accuracy of the Minuteman missiles that are on alert by 100 percent. The strategic modernization program that has been taking place not just over the past six or seven years, but started in the mid-seventies——

Mr. Dicks. We still have those ICBMs in vulnerable silos and your own estimates indicate that 85 percent of them would be destroyed in a bolt-out-of-the-blue first strike.

General Welch. That is not my estimate.

Mr. Dicks. How many would be?

General Welch. It depends on how many we leaving sitting there until the attack is over.

Mr. Dicks. So it is our policy to launch once they attack or with warning?

General Welch. This is inappropriate for me to speculate on when the President would launch because I don't know, and neither do the Soviets.

As long as the Soviets know that the President could launch, then the Soviets are deterred by the capability of those weapons in those silos.

When we move from deterrence to warfighting in the strategic nuclear arena, then I really think we have lost sight of why we buy those systems in the first instance.

I would love to have every strategic system on a constant alert with enduring survivability every minute of every day, but we can't afford that.

So we accept the fact that only ——— the bombers are survivable everyday. If we weren't content with ——— of the bombers, we could increase that to ——— with a phone call.

General Welch. We are content to have only ——— our submarines at sea. But if you are not content with that, we can increase that to ———.

Every day we make a decision across the whole triad as to whether or not we are satisfied with the status of the day-to-day alert forces and the capability of those forces to deter a surprise attack.

Our answer is yes, we are satisfied. If we weren't satisfied, we would increase the bomber alert, increase the submarines at sea, but we don't find it necessary to do that at the current state of tensions.

We have high confidence that we can recognize when we have a developing crisis that calls for higher alert rates and in the past we have increased alert rates. We put B-52s on alert during the Cuban crisis.

ADVANCED CRUISE MISSILE

Mr. DICKS. The advanced cruise missile, last year Congress eliminated procurement funding and we required six successful flight tests prior to a production decision.

How many have been successfully accomplished so far and when will the six tests be done?

General WELCH. The next flight by GD is scheduled in ———. Assuming that one is successful, that will be the ———.

Mr. DICKS. When do you think the sixth will be accomplished?

General WELCH. The earliest the six could be accomplished will be about ———. That is the earliest if everything works well.

Mr. DICKS. How many ACMs do you plan to buy?

General WELCH. Total ———. The first McDonnell Douglas ACM flies in ———.

Mr. DICKS. You have competition now, right?

General WELCH. That is the second source, yes, sir.

Mr. DICKS. How has the acquisition objective changed from last year's budget, this number ———?

Secretary MCGOVERN. It has not. We have changed the profile of missiles somewhat, but the overall program quantity has not changed.

Mr. DICKS. The Committee understands that the Air Force proposed to reduce the quantity by two-thirds during internal Pentagon deliberations last spring, but OSD directed that the original quantity be obtained. Please explain the Air Force thinking at that time.

General WELCH. That had to do with START negotiations and budget problems. That was one of the several things that we proposed to live with a very difficult budget situation.

In the end, we agreed with OSD. This is not one where we were overruled. In the end, we agreed with OSD. We decided they were right.

Mr. DICKS. Explain your current restructured acquisition strategy.

Secretary MCGOVERN. In 1990, we were requesting ——— and in 1991, also ——— which leaves us with ——— to complete for the outyears with the total program as I mentioned earlier, ———.

Under any budget scenario that I foresee on this program particularly, we will preserve the option to go dual-source just because of the problems that we are having with them.

Mr. DICKS. Do you have enough quantity to justify dual-source? ——— doesn't sound like enough to me.

Secretary McGovern. Almost every time the issue comes up as to whether or not you have the quantity to justify dual-source, and clearly there is a line of demarkation, but the program has had such endemic problems that largely we think quality control——

Mr. Dicks. Why don't we cancel it? Explain to me why you think it is justified to keep this program alive.

We have all these problems. We know that the Air Force generals a few years ago recommended that when we get into these acquisition exercises of stretching everything out, it is better to cancel a few things and come back and revisit it later. Why can't we cancel the ACM program?

Secretary McGovern. I am sure we would be popular if we could say that we cancelled a couple of programs. Everybody would probably applaud us and unfortunately nobody would hold us accountable for the costs in this program.

Mr. Dicks. A number of us advised the Air Force that they should have gone ahead with the upgraded ALCM-B rather than going down this road in the first instance.

We were told was an absolutely essential requirement. It would be faster and better and now we have spent all this extra money and here we sit with nothing.

Secretary McGovern. I am not going to suggest to you that we will never make that decision because there are always options, but the ACM does offer a substantially increased range which given what we talked about before in terms of Soviet air defenses, it is a high-leverage weapon that gives us substantially increased range over the ALCM-B, obviously increases survivability and you have to weigh survivability into the costs, and will have almost twice the accuracy of the ALCM-B. It is clearly a high-leverage program that fits into the competitive strategy requirements.

Mr. Dicks. Given the B-1 problems, what are your plans for using the ACM on the B-1?

General Welch. At the present time, we need the B-1 as a penetrating bomber. ———.

Mr. Dicks. GAO says that any time you put cruise missiles on the B-1, you increase drag and it affects range and they have numbers here that talk about the difference in the current requirement, I think it was for standoff ACM ———.

Is that the way we should read those numbers?

General Welch. Those particular numbers are not very significant. ———.

Mr. Dicks. But we have cut that back.

General Welch. It does continue to make progress.

Secretary McGovern. Another thing on the ACM, one of the reasons that it would make little sense to cancel the program is we are under a fixed-price incentive fee.

They are not yet at the ceiling price of $655 million, but whey they go over, they start paying, so why shouldn't we make the contractor perform?

Mr. Dicks. What is our position regarding the B-1 as a cruise missile carrier in the START negotiations?

General Welch. Our position is that under the START negotiations, the B-1 will ———.

Mr. DICKS. How much ACM R&D and procurement is related to the B-1? Are they interrelated? Work that is being done, I assume, for the ACM to be used off the B-1?

General WELCH. I think that is all funded in the B-1 line. That is the carrier compatibility. ———.

Mr. DICKS. So none of the ACMs are indeed related to the B-1?

General WELCH. I will have to check that. Right now, the ACM R&D is focused on missiles and we have been firing it off the B-52s.

Secretary MCGOVERN. As a matter of fact, there is a flight today.

[The information follows:]

The ACM is designed to operate either from the B-52 or the B-1. However, the current plan is to initially deploy them only on B-52s.

B-1 AIRCRAFT

Mr. DICKS. Let me switch to the B-1 for a second.

A GAO report released earlier this month entitled "B-1 Cost and Performance Remain Uncertain" discussed a number of continuing problem areas with respect to the B-1.

While acknowledging that progress has been made, pretty significant progress I felt after reading the report, the GAO continues to highlight a number of problem areas.

The principal area remains defensive avionics.

It states:

Recently disclosed problems center on the system's radar warning receiver and processor function, which is intended to initiate defensive action by receiving and identifying threat to system signals.

Although specific flight tests results and the intent of the ALQ-161 limitations are classified, the problem originates with the basic system design. The program office believes that software revision may allow limited performance improvements, but these revisions will not be able to overcome design deficiencies. As a result, a significant degradation of system capability exists.

Do you agree with this assessment?

General WELCH. Yes. I could put it in English if you would rather have English.

Mr. DICKS. That was out of GAO. Let's hear it from the Air Force.

General WELCH. What I am going to say doesn't necessarily disagree with GAO.

The requirement is for a system that would automatically receive the threat warning, direct the jammer, and jam the threat.

As we began to test the system, it was obvious that the central processor simply couldn't handle all of that task.

The jammer works fine. ———. So our fix is to improve the core system to the extent we can ——— and install an additional independent radar warning receiver, which is not difficult. We can use one derived from the F-15 system, the ALR-56, and that gives the ECM operator ———.

GAO is absolutely right. Setting out to build an architecture and a central processor that in a very dense environment could identify all those threats, classify all those threats, fingerprint all those threats, assign a jammer to it and jam it was beyond our ability.

Mr. DICKS. You said you were going to put in another system off the F-15?

General WELCH. In addition to the core system, our proposal is to install an independent RWR based on the F-15 radar warning receiver; that is correct.

Mr. DICKS. Did the Defense Science Board look at alternatives to that a few years ago?

General WELCH. Yes.

Mr. DICKS. There are a number of people who think they have the answer.

General WELCH. This is in consonance with the Defense Science Board recommendation.

Mr. DICKS. I think that is correct. There are a number of people who have suggested that there are a number of systems that the Air Force ought to look at. Are you familiar with that at all?

General WELCH. Yes. I have spent hours and hours and hours on this subject.

Mr. DICKS. I am sure of that.

General WELCH. We put together a group and they consulted with more people than I could name for you and they looked at all the approaches to providing the capability that we think we really need to give the airplane long-term capability.

We obviously selected one that we have high confidence in. We would have liked to have had it within the $20.5 billion. We can't get everything I described within that figure. It takes us over.

Most of all, we wanted this time to have proven things that we have high confidence that we know how to do. This particular solution meets all those criteria.

Mr. DICKS. Some of the alternative electronic warfare systems are the B-52's ALQ-172, the F-111's ALQ-189, et cetera.

How many of these alternatives have been actually flight tested on a B-1B to provide real data for comparison?

General WELCH. None. Integrating the ALQ-172 on the B-1B is a complex and expensive task. It takes three systems and it does not completely solve the problem.

We are thoroughly familiar with the F-111 system. The 161 is a better jammer. The ALR-56 is a better receiver. The 161 jammer is currently on the B-1 and the ALR-56 on the F-15 is a far more promising approach. All total, we looked at 18 combinations. We picked the combination that was most available and most cost effective.

Mr. DICKS. The integration problem with this airplane was the problem. We didn't properly integrate it. Don't you think it would be useful here to test a few of these systems?

General WELCH. Absolutely.

Mr. DICKS. Are you going to do that?

General WELCH. Absolutely.

Mr. DICKS. How much expired funds will be used to finance this initiative and how much was originally appropriated for the B-1B?

General WELCH. Everything that I have named comes to $20.88 billion, which is $380 million over the original $20.5 billion baseline. We will exceed—we have to get additional congressional approval for the money for the radar warning receiver and deferred depot support equipment. That is not in the baseline approval, and we would exceed the $20.5 in 1992 and we have to have congressional statutory relief before exceeding $20.5 billion.

Mr. DICKS. Do we have a structural problem with the B-1B at this time in terms of the wing moving back and forth and puncturing a fuel line that, as I understand it, has been pinpointed as the cause of recent fire on the last B-1 that went down? Is there a structural flaw here that we need to be concerned about?

General WELCH. There is no evidence of a structural flaw. There is evidence that we had a fuel line failure and it caused a fire.

Mr. DICKS. I am told that it is because of the wings moving back and forth that caused that and therefore some people feel there is a structural difficulty. Are you going to have to correct the remaining planes for that problem?

General WELCH. We inspected all the aircraft. We were unable to pinpoint exactly where the fire originated and exactly which line failed. So when we were unable to pinpoint exactly where the failure was, our accident prevention approach is to inspect everything that is in that area on all the aircraft. We did that, and it is completed, and we found no further problems. I know of no problems.

Mr. DICKS. I still believe that we ought to fix the problems that we have got. In other words, if we can for a rather modest investment fix 97 aircraft especially with this very important fix on the defensive countermeasures, that that is a wise thing to do.

Is that pretty high on your priority list to get that done?

General WELCH. Very high. Our needs are fairly modest; that is, our goals are fairly modest. We have a small number of long-planned enhancements outside the baseline, such things as putting MILSTAR on the airplane, but our number-one priority obviously is to fix the ECM system. We have identified what we regard as the most prudent, affordable approach to that.

Mr. MURTHA. You are talking about $500 million in new money. Is that what you are asking for?

General WELCH. $489 million for the RWR and $250 million for support equipment which has to be approved, and this will bring us to $380 million above the $20.5 billion. So we need those two approvals.

Secretary MCGOVERN. You may be referring to expired money. Is it?

Mr. MURTHA. You would ask from existing funds to fix the B-1B with half a billion dollars?

Secretary MCGOVERN. $489 million——

Mr. MURTHA. And that includes $380 million over the $20.5 billion?

Secretary MCGOVERN. That is correct. While we are on the subject of costs, though, Mr. Chairman, because I think it addresses one of the issues that you have raised with me a few times, and that is that there is this general, after the GAO, I think a GAO report indicating the Air Force is planning to spend $8 billion—we would like to put that to rest. That is a conglomeration of all of the nice-to-have things that the GAO thinks we need, I suppose, and SAC wanted to have in a fiscally unconstrained environment.

What we are really talking about here is a program of about $1.43 billion, of which $346 million are in the 1990 to 1991 budget submission that we presented to you, which will cause us to have to exceed the $20.5 billion cap by $380 million.

So I hope that puts in context what we are planning to do versus what we are not planning to do relative to the $8 billion that seems to keep floating out there.

Mr. **Dicks**. We understand that, and we want to give you a chance to discuss that a little bit. Some of the future enhancements discussed in that CBO report include ——— radar countermeasures, $1.4 billion; high-resolution infrared targeting sensor, $1 billion; forward-warning system, $700 million; SRAM–II, $260 million; onboard mission planning system, $600 million; improved synthetic aperture radar, $600 million; reliability and maintenance enhancements, $600 million, and numerous others.

Which of these are important and which aren't? I thought we wanted to do SRAM–II.

Secretary **McGovern**. Yes.

General **Welch**. MILSTAR, GPS, SRAM–II, reliability and maintainability enhancements are all we are seeking and that comes under the number that Mr. McGovern described, the $1.4 billion.

Mr. **Dicks**. We were told at the Strategic Air Command that ——— of the target set is taken by the manned-penetrating bombers. Is that an accurate number?

General **Welch**. Almost ——— yes, sir.

Mr. **Murtha**. Mr. Livingston?

OVERHEAD RECONNAISSANCE

Mr. **Livingston**. Thank you, Mr. Chairman.

General, I am a little bit concerned about the gap that seems to be on the horizon for us in overhead reconnaissance. I realize that we have to talk in generalities because we are not at the top classified level.

Specifically, we have zero in the budget for SR–71s this year. I think SR–71 is probably the most capable air-breathing airplane ever constructed and has outrun just about every threat that we can imagine and still has that capability.

Reliance on the U–2 and the TR–1 don't have that capability. In the early sixties, the U–2 was shot down and presumably is still vulnerable.

The overhead items have some capability, but probably not in the degree of turn-around time that we need and will need for many years. The possible follow-ons, which again we can't talk about, even if we were going ahead with them, wouldn't be available for many years, six or seven years, and we are not going ahead with them.

My question to you is, what are we going to do in the absence of having an effective vehicle which can zoom over to the site, take pictures, and advise us about any incident that might well mean the future of the world?

General **Welch**. I would much rather be on the side that argues in favor of SR–71.

I have known the SR–71 and agree it is a marvelous airplane, fun to fly and has a lot of capability, but I think it is important to put into context what we get out of the SR-71. That airplane is 25 years old.

It was specifically designed to ——— reconnaissance. That is why we built the airplane. It can't do that. ———.

What I am saying———

Mr. LIVINGSTON. Is the SA-5 a threat to the SR-71?

General WELCH. ——— so as the SR-71 aged and the ground-based defenses became better, the environment the SR-71 can operate in and the U-2 can operate to begins to shrink.

The Soviets can shoot down the U-2 ———.

Mr. LIVINGSTON. It has been shot at?

General WELCH. Not for quite a while.

Mr. LIVINGSTON. ———?

Secretary MCGOVERN. We don't know that it ———.

General WELCH. It was bad geometry. If the Soviets want to ———.

On the other hand, the SR-71, takes marvelous pictures, very high-quality pictures. There is no substitute for that other than the U-2 which provides imagery particularly with ASARS, every bit as good. The issue is how much you pay for that increment that we get out of the SR-71 and that we pay for dearly.

So it was the judgment of the Air Force at great pain that given ———.

Mr. LIVINGSTON. Well, I might agree with you under those circumstances for the SIOP situation, but, God willing, we are not going to see that happen. But we are going to see incidents around the world such as the Libyan incident a few years ago ——— and we are going to have to need to get in and get out, take pictures, take a look at what is going on and get the President some information before he does what he has to do.

It seems to me that we have an undue reliance on overhead assets ——— but we really don't have any alternatives. We don't have any options.

I am really surprised that we have cut back the reengining project for the U-2 and the TR-1; in fact, I think that is scrapped altogether. We are going to cut back the SR-71 and right now I believe ——— and the other things that we were looking at have been scrubbed.

So what happens when we run across another Grenada, or Libya, Iran, Iraq type problem and we have to be there on the scene. We don't have all the birds we need ——— so aren't we leaving ourselves unduly vulnerable by just saying we are going to save money?

General WELCH. The problem—of course, obviously, it was the judgment of the Air Force and Joint Chiefs of Staff, the answer to your question is, no. We give up the small increment but it wasn't that worrisome. The only area that the CINCs were very uncomfortable with was coverage of ———. We can cover those same ——— with the TR-1 or the U-2.

Secretary MCGOVERN. More frequently than we are doing today with the SR-71.

General WELCH. ———.

Mr. LIVINGSTON. It was not?

General **Welch**. No, sir. ———. Each time we did it, it cost $3 million for a single flight. So we ran a $3 million flight ——— which I characterized as a great comforter. It confirmed things that we already knew.

So we were much more comfortable in our knowledge, but it really didn't——

Mr. **Livingston**. Did it give you any planning intelligence?

General **Welch**. Didn't give us anything we didn't already know because nothing had changed significantly from what we knew from the overhead system.

I am not arguing that you get nothing from the SR-71. I am saying the incremental addition of the SR-71 gets smaller and smaller and smaller, and the costs gets greater and greater and greater.

Mr. **Livingston**. How about the follow-ons? Without going into too much detail, somebody mentioned before about ———. Right now we don't have any.

General **Welch**. I'm sorry, I missed that.

Mr. **Livingston**. ———. Why have those been scrubbed?

General **Welch**. There are a couple of programs. Frankly we have not found them too promising. We have found the ———.

Secretary **McGovern**. With more frequency.

If I can just put that decision in context, Mr. Livingston, we don't want to be in a position—we defend the decision, but none of us were terribly enthusiastic with the notion of terminating the SR-71. I know initially I was vehemently opposed but we did that in the same year that we were doing a lot of distasteful things. That was the same year that we decided that as a result of the budget environment that we would have to go from 38 tactical fighter wings to 35.

When you trade—my recollection of the cost of operating ten SR-71s was something on the order of $360 million a year. Does that ring a bell with you?

General **Welch**. Yes.

Secretary **McGovern**. $360 million a year. That to us—just as a comparison, not that the comparison is dispositive, but it costs us roughly $160- or $170 million a year to run an F-16 tactical fighter wing of 72 airplanes so that is the equivalent of several tactical fighter wings.

So as General Welch says, when you compare the deterrent value and the warfighting capability versus the notional return on that dollar, the SR-71, a very useful program and important program, but in the scheme of things just became a very low priority.

That is a classic example of the military capability that we are clearly giving up as we make these budget cuts.

Mr. **Livingston**. What is the cost of keeping between one and three SR-71s available in the case we need them?

General **Welch**. You mean keep them operational?

Mr. **Livingston**. Yes, keep them operational in case we needed to operate them.

Secretary **McGovern**. I don't know the figure offhand and we will get it for the record.

Of course, the problem with any—any time you operate one or two airplanes, you have the logistical support particularly for a very old airplane like that. The training required to keep the pilots specially trained for that airplane, all goes into it.

One has to really decide what part of the world you want to concentrate those assets on because they obviously can't be dispersed everywhere.

Mr. Livingston. You will supply the cost for the record?

Secretary McGovern. Yes, sir.

[The information follows:]

The costs involved with keeping a minimum force of SR-71s available are not dependent upon number of aircraft; they are driven by flying time, sortie generations, and costs to keep supply contracts active.

The minimum sustaining force requires keeping ——— crews current, one crew in training per year (for rotational/replacement purposes), and maintaining sufficient aircraft to ensure the capability to respond if needed.

A total of ——— million will support the aforementioned program and keep ——— aircraft in flyable condition. This does not allow for any major maintenance or engine overhauls, therefore committing the aircraft to disposal as each airframe reaches prescribed accumulated flight-time limits. The above figure also excludes funding for any operational SR-71 missions and the associated costs incurred (tanker support, temporary duty pay, processing/exploitation, etc.) for those missions.

Mr. Livingston. Thank you.

Mr. Murtha. Mr. AuCoin.

EARTH PENETRATING WARHEAD

Mr. AuCoin. Thank you, Mr. Chairman.

Let me address the earth penetrating warhead. Last summer the Defense Department decided to pursue this program. To date, I understand that Congress has not been asked to appropriate funds for the initiative.

General Welch, what is the earth penetrating warhead?

General Welch. The funds are currently being used for the warhead, advanced strategic missile line of warheads, so there are funds applied to the penetrating warhead but no development funds.

Mr. AuCoin. No development funds?

General Welch. Right, The purpose of the earth penetrating weapon is to hold at risk those deeply buried leadership targets in the Soviet Union.

Mr. AuCoin. Leadership targets?

General Welch. Yes, leadership targets. But there are a growing number.

Mr. AuCoin. It is the command and control?

General Welch. Military command and control facilities, yes. Some of them buried as deeply as ———.

Mr. AuCoin. How are those targets held in risk today, or are they?

General Welch. They were held at risk by—Titans until we retired all of them and we have resurrected ———.

I don't remember the exact numbers, but, for example, when I was CINCSAC, we put ——— warheads just on ——— and I think it produced a DE of about ———. So that is not unimportant.

We think it is important that the Soviet military leadership understand that they are at risk if they make the decision to attack. Still, it is a very expensive way to hold those targets at risk.

Mr. AuCoin. What weapons did you say would be used to deliver such a warhead?

General Welch. Right now the most promising is either ———. We are looking at the longer term on the feasibility of delivering such warheads with ———. At the present time that looks too tough to do. ———.

Mr. AuCoin. In the short-term you are pursuing which approach?

General Welch. ———.

Mr. AuCoin. ———?

General Welch. ———.

Mr. AuCoin. For the record, would you explain the requirements for and advantages of ballistic solutions compared to the maneuvering solutions; would you amplify that for the record?

General Welch. I'm sorry, say again?

Mr. AuCoin. For the record I would like you to explain the requirements for ballistic solutions.

General Welch. OK.

Mr. AuCoin. Compared to maneuvering solutions.

General Welch. Yes.

[The information follows:]

Ballistic reentry vehicles (RVs) are inherently less complex and costly than maneuvering reentry vehicles (MaRVs).

However, earth penetrating warheads (EPWs) require specific impact conditions to insure proper burial of the warhead. The flight path angle at impact must be fairly large, and impact velocities should be between defined limits to effect proper penetration. In addition, the RV must be exactly aligned with the flight direction or the penetrator will be destroyed. Currently, it is difficult for purely ballistic ICBM RVs to achieve both the velocity and impact angle requirements.

MaRVs have the ability to fly to any impact conditions. They can easily achieve the impact angle and velocity requirements, and are much better at aligning the RV with the flight path at impact. The complexity of a MaRV is only slightly more than a ballistic solution that modifies its flight path during reentry, and the much improved accuracy and defense penetration capability usually outweigh the increased cost and complexity.

Mr. AuCoin. If the leadership is put at risk and if warheads of this kind are ever used against the leadership positions, how does the war end?

General Welch. The objective is for the war not to start. Our objective in holding the leadership at risk is that it is that leadership that makes the decision to initiate an attack.

You have to believe that one of the targets that the leadership holds to be in great value is their own headquarters, where they operate from. We are talking about a significant number of leadership targets.

The military operating area is in a different area than what we would call where the national command authority resides. We can hold at risk the national command authority just as they do hold at risk our national command authority. But the ability to attack deep and buried targets does not carry with it the ———.

Mr. AuCoin. How long can the leadership hold out in those underground positions?

General Welch. ———.

Mr. AuCoin. We think that they feel they could weather the storm and not be hit and crawl out in ——— and be safe?

General **Welch**. I have a great deal of trouble with that. I don't know what they think. I happen to be one of those who thinks that if deterrence fails, that the devastation is so complete that those questions become academic but I don't know if the Soviets feel that way or not. I feel that way, and I think I know as much about nuclear targeting as most anyone in the country. But the Soviets may or may not feel that way.

Mr. **AuCoin**. How much is required in fiscal 1990 for this initiative? What do you estimate the total cost of the initiative to be?

Secretary **McGovern**. Which initiative?

Mr. **AuCoin**. The earth penetrating warhead.

General **Welch**. I will have to get that for you.

[The information follows:]

In the FY 1990 budget, the Air Force has requested $54.1 million in RDT&E and $9.0 million for procurement of the ——— with earth penetrating weapon (EPW) capability. Additionally, $2 million is required to study the EPW option for the Advanced Strategic Missile System program. The total cost of incorporating the EPW ——— is $102.6 million RDT&E, $63.4 million procurement, and $28 million Department of Energy modification and production costs.

Secretary **McGovern**. We have a little over $100 million in 1990 and 1991 throughout the FYDP for the next three years anyway, around $100 million as part of the advanced strategic missiles system of which earth penetrating is one.

Mr. **AuCoin**. Is the Navy participating in any way in this?

General **Welch**. Yes. The Navy is part of the concept study. We will have to break out how much of that is applied where.

Mr. **AuCoin**. Do that. Yes, please.

[The information follows:]

As part of the $100 million advanced strategic missile system (ASMS) request, $2 million will be applied to earth penetrating weapon (EPW) research. The Navy is not participating directly in the ASMS program, but is working with the Air Force and Department of Energy in a feasibility study to develop one or more EPWs for employment against the Soviet deeply buried, hardened targets.

ARMS CONTROL

Mr. **AuCoin**. Both of you at one time or another have indicated, and I notice in the Secretary's statement he stated that he regards, as you have indicated, that one of the principal virtues of START would be a movement away from fast-flying ballistic missile warheads to a more stabilized scenario of bomber-delivered warheads.

I congratulate both of you on identifying what I think is a very desirable goal. I certainly share that goal.

I would hope that START moves us towards that goal.

There are a couple issues involving quick-strike weapons that START doesn't touch. One that has always concerned me is the land based SAC bomber force, and that is the prospect of a large force of Soviet SSBNs with advanced technology ———.

I am sure you are familiar with that potential threat. I don't believe it is there now, but it could be coming and there is nothing in START that would prevent it.

Can either of you suggest possible future arms control measures that could help with that problem?

General **Welch**. Well, I don't have anything that pops into mind. Certainly we would know if they begin to operate in those areas, we could take measures to increase survivability but I don't have any suggestions as to how you can enforce where they patrol with their submarines.

The good news is what we have seen them doing in recent years is ———.

Mr. AuCoin. But there is nothing that compels that.

General Welch. That's right ———.

Mr. AuCoin. I was thinking as a non-aggressor nation. Does anything come to your mind in terms of arms control, that comes to mind in avoiding the ——— attack? Anything come to mind?

General Welch. Not really.

Mr. AuCoin. Stand-off zones? Flight test ban ———.

General Welch. Can't be very helpful. If I had an idea, I would tell you.

Mr. AuCoin. You don't think either one of those are very helpful?

General Welch. I don't know how to enforce the zones.

Mr. AuCoin. What about a flight test ban?

General Welch. Flight test ban on ——— well, the difficulty with that, of course, in our discussion with the Soviets so far is that ———. I suppose it could be done. It is not currently on the table, though.

Mr. AuCoin. My question is, I guess, thinking about our bomber assets that might be put at risk, should it be?

General Welch. We certainly have no use for it. We certainly have no use for ———.

Mr. AuCoin. And we would like to keep it out of the hands of the Soviets, I take it?

General Welch. I think that would be desirable. The only reason I am hesitating is that anything that complicates START negotiations further doesn't add much to the likely———

Mr. AuCoin. Believe me, nothing I suggest will complicate the negotiations.

General Welch. That is my difficulty, though, adding things to the START negotiation goals.

Mr. AuCoin. But from a military standpoint———

General Welch. From a military standpoint, it would be desirable. But I am not nearly as worried about that as I am about the SS-18's.

Mr. AuCoin. For a long time none of us were as worried about MIRV'd weapons until they became a reality. That is what I am worried about, that we may see the ——— a reality. Then SAC has a major nightmare.

I would just like to ask a couple questions about fundamental strategy that troubles me, and I would like you or the Secretary to respond.

For the last 15 years the major modernization goal of our strategic missiles has been toward greater accuracy for prompt, hard-target kill capability. Yet all the evidence says that we will never destroy any Soviet ICMBs with this capability; rather, we will just force them to launch under attack.

If we do that, we will be hitting empty silos or hit C^3 that is already given the launch order.

Now, I hear you all talking about doing the same thing with the B-2 and going after mobile ICBMs and C^3 and after advocating global ICBMs, as survivable and stabilizing on our part, what this tells me is we are trying to make Soviet mobile ICBMs nonsurvivable.

General Welch, you have addressed this question before and your answer has been that the Soviets probably will launch under attack, yes, but then you add that they want to keep a reserve force and by threatening to disrupt their plans for a reserve force, we add to deterrence.

That raises a question for me and that question is, for years we have been told what America needs is the counterforce capability to provide for selective strikes, intra-war deterrence, something in between total spasm war and surrender. That is what we need.

Now, when we send the other side, the Soviets, a message that selective war won't be possible for them—that for them it is going to be total spasm war or nothing—it seems to me that we are in conflict with everything we have been saying here in the United States since the beginning of the counterforce.

Aren't you walking away from intra-war deterrence and going back to the dual strategy of total spasm war by putting the other side in a position of launching all at once, the reserve force as well as the first line?

General WELCH. In the first place, greater accuracy is better regardless of whether you use it for a hard-target kill or for whatever you use them, because greater accuracy enables you to make an attack on what you want to attack and not attack what you don't want to attack.

We have over the years steadily reduced megatons on all weapons because of greater accuracy. So it was a U.S. approach to try to go to small warheads and make up for the difference with accuracy regardless of the nature of the target.

As for the overall deterrent strategy, I don't think that anything we are doing would lead one to believe that we might be forcing the Soviets into a spasm attack.

Mr. AUCOIN. Why aren't we if we are putting their reserves at risk? We are just asking them to trust us that we wouldn't use that capability against their reserves?

General WELCH. Oh, no, but what I am saying, none us have any possibility of achieving first-strike attack. We both know that. None of us have any—neither of us has any possibility of escaping a devastating retaliatory attack and the purpose of our whole objective in deterrence is to make it impossible for the Soviets to calculate that they have any attack plan, that they can devise any attack plan that has any possibility of achieving their objectives. You have to assume that if the Soviets have an objective that includes attacking the United States that is not the end of their objective.

The Soviets would hope to come out of that particular exchange in some position to exploit having come out of that exchange. So we can find no clever way, we can find no more clever way to ensure that no Soviet planner could ever believe they could achieve their objective than to ensure that we can target everything that is of value to the Soviets. That does not per se require that we attack simultaneously everything in the Soviet Union nor do they have such a plan. I don't know of any approach that guarantees that no Soviet planner can ever believe they could achieve their attack objectives that is better then the Soviet planner knowing that we can hold at risk everything they hold to be great value.

So what is the argument? The argument is that somehow the world would be a safer place if the Soviets thought that all of their forces were invulnerable to being held at risk by the U.S.? I don't know where to go with that argument.

Mr. AUCOIN. Not all. Just those that can launch under attack. Obviously we are after the same goal. We don't want the war to be fought. What I see happening is steps toward ever-quicker, ever-prompter, quick, hard-target kill capability in the name of virtuous things; we want to keep America safe but if that means then that we foreclose any arms talks, any restraint on the part of the Soviets from acquiring the same assets, same capability, then I think they are advantaged more than we because ultimately as we creep forward on this on so many fronts, and our satellite warfare technologies may put at risk ultimately the high-level orbiting early-warning satellites, we yet ——— increased hard-target capability which threatens the leadership positions and so forth, it seems to me somebody over there is going to say, if the Yanks use everything they got that they are capable of, that is the end of the day.

General WELCH. I hope that is what they say.

Mr. AUCOIN. But maybe they will then say, rather than just trusting us, that we won't use it—and as a uniformed Air Force officer, I doubt you would place similar trust in them. What I worry about is their response would be maybe they better use what they got, use theirs and use it first. That seems to me to be the central dilemma.

General WELCH. Except that you resolved the central dilemma when you said that they would look at all of that and decide they couldn't possibly come out of it ahead so they couldn't make a decision to attack. I don't know how else to do it.

Mr. AUCOIN. If we gain all of this, obviously since the symmetry is such that they will not restrain themselves, we will not have a treaty that permits us to give this, and remember, "Monkey see, monkey do," they will get it. We didn't think they would get MIRV'd missiles, but they did. Kissinger lived to say he wished he never heard the word MIRV.

The point is, both sides get it, and if they do, both sides will have it. John Vessey said, "I am a soldier, Mr. AuCoin, all I can deal with is their capability. I can't deal with motives." Someone over there feels the same way and always will. You will too. I see that capability aimed at me, I might be tempted, if we keep adancing the technology to the point where the counterforce becomes the premium, we get to the point where it is a "use it or lose it" type of thing.

I will tell you who I think would use it first; it is not going to be us. We are the moral nation, not the aggressor nation. Those kinds of capabilities, that kind of capability in the hands of the Soviets is a capability that makes me very nervous because I don't think they have the same morality or values that we do.

General WELCH. Well, we have hit upon a system that seems to work very well. It is deterrence.

Mr. AUCOIN. What happens is if you get to the point where both sides have potential of a successful first strike, and maybe even if we get a Star Wars system, an SDI system, and we share the technology as President Reagan wanted us to do with the Soviets, or whoever goes first has their SDI, first an ASAT capability that takes out our warning, a coordinated offensive attack hits our targets, and we are a blind victim. They have an SDI mopping up whatever feeble retaliation we have left. What they have shot offensively is counterforce stuff. At that point, it seems to me that the old notion of deterrence is dead. Instead of deterrence you have invitation. The invitation being if you have any hope for survival, you must go first.

It is like two men in an alley shooting with pistols, loaded at point-blank range. You shoot before you think he will shoot you.

General WELCH. You postulated a condition that doesn't exist and I don't think it will.

Mr. AUCOIN. It doesn't exist now, but I am worried it ultimately will.

General WELCH. If they could ——— deny us a warning time we need to get the bombers airborne and if they could make the operations transparent and attack in such a way they could be confident we would not be able to respond with ICBMs before they were successful in attacking, if they could do all that—but they can't do any of that.

Mr. AUCOIN. Not now.

General WELCH. Not now nor in any foreseeable future that any of us can see. That is the strength of the triad. But if indeed they are able to do all that, over some period of time then I don't have a solution for you. My solution is to hold them at risk and to ensure that they can never believe that they could succeed with a first strike.

If you postulate some future point where my solution doesn't work, I am out of solutions. But my solution works very well right now.

Mr. AUCOIN. Right now.

General WELCH. And very well for the foreseeable future, also.

Mr. AUCOIN. Right now, yes. I just think that time will come when in Geneva, we have to think about trying through verifiable test bans or something like test bans the limitation of this capability on both sides because it is more to the advantage of the Soviets than it is to us.

I don't think we are going to pull a Pearl Harbor, but I would not be confident enough to say that the Soviets would never do it.

Mr. MURTHA. With that, the Committee will adjourn. I appreciate the flexibility of the Members and the Secretary and General Welch for going straight through lunch to accommodate my schedule. We will have questions for the record. Mr. Sabo has some questions for the record also. Thank you very much.

We will adjourn until tomorrow at 10:00 o'clock.

[CLERK'S NOTE.—Questions submitted by Mr. Sabo and the answers thereto follow:]

OVER-THE-HORIZON BACKSCATTER RADAR

Question. For several years now, the Air Force has been studying where in northern Minnesota it wants to locate the transmitter and receiver for a proposed Over-the-Horizon Backscatter radar. I understand from press reports that you may have narrowed your choice for the receiver site, out of Pennington County and into Polk County. I know that some of the citizens in that area are concerned about the impact of the OTH–B on valuable farmland.

What is the status of this project? Where are you in the site selection process? Have you determined whether any farmland will be taken out of productive uses by the OTH–B?

Answer. The Air Force is currently selecting candidate sites from within the study area. Within the next several weeks, we intend to select approximately a half dozen candidates for the next level of environmental study. By late summer, we intend to narrow the choices to two or three, which will then be subjected to the most detailed level of environmental investigation we will perform. We will make our final site selection from these candidates in late fiscal year 1989 or early fiscal year 1990.

We are still looking at the entire study area, which is about evenly divided between Pennington and Polk Counties. The US Army Corps of Engineers is seeking rights of entry to as many parcels of land as possible, so that we may most effectively select candidate sites. We have not determined if the selected site will include farmland.

LOCAL WEATHER DISSEMINATION SYSTEM (LWDS)

Question. I have been in contact with the Air Force on several occasions about a competition for a procurement of a Local Weather Dissemination System (LWDS) to be located at some twenty Air Force Bases around the country. In November 1988, I was informed by the Air Force that it would be releasing another Request for Proposals (RFP) during fiscal year 1989. Can you provide me with information about the status of this contract, and when the Air Force expects to issue a new RFP?

Answer. The requirement for the LWDS was synopsized in the Commerce Business Daily (CBD) on January 5, 1989. RFP F4465089–R–0007 was issued on February 10, 1989, and the due date for receipt of proposals is March 31, 1989.

F–16 PROCUREMENT RATES

Question. In your prepared statement, you note that the fiscal year 1990 budget includes funds for procurement of additional F–16 fighter aircraft. I share the concern of many Members of Congress that, in order to deal with falling defense budgets, we are purchasing aircraft and other systems at inefficient rates of production. The proposed production rate for the F–16 has already fallen from 180 to 150 aircraft per year, and there are press reports that the Air Force has now proposed to cut production even farther, to only 120 aircraft per year.

Can you tell me whether the decreased procurement rate has increased the cost per aircraft?

Answer. Yes. Assuming a multiyear procurement for fiscal years 1990–1993, the average unit recurring flyaway cost in then-year dollars is $15.0 million per aircraft for 180 F–16s per year compared to $15.3 million for 150 F–16s per year.

Question. Has the Air Force made a determination about the lowest economically acceptable rate of production for the F–16?

Answer. Yes. The lowest economically acceptable rate of production for F–16s is 108 per year.

ANTISATELLITE WEAPON

Question. There is nothing in your statement about Air Force funding for anti-satellite (ASAT) weapons, and I know that Air Force officials have made statements to the effect that the service is "out of the ASAT business." I would like to know whether this is true. Is there any money in your budget for ASAT research or development, or for research or development of systems that would be used to support either Army or Navy ASAT systems? Does the Air Force envision a situation in which it would develop ASAT systems? What is your assessment of Soviet ASAT systems, especially in light of press reports that the Central Intelligence Agency has concluded that the Soviets have negligible ASAT capability, and that they have made little progress toward an ASAT capability since 1985?

Answer. The Air Force has money in the budget to develop groundbased laser (GBL) technology for an ASAT weapon system in Program Element (PE) 0603605F. The Air Force also has money in PE 0102424F for space surveillance/command and control system upgrades which would be supportive of any type of ASAT system. The Air Force could develop a GBL ASAT system if the ongoing technology development program continues to be successful. The Air Force also could develop a space-based ASAT system in the future if research in space-based weapons technology shows this to be a prudent course of action. The Soviets have demonstrated a ——— success rate with their co-orbital ASAT through a series of operational tests from 1971 to 1982. Despite their self-imposed testing moratorium, the Soviets have frequently exercised all the components of their system to maintain its operational readiness. The Soviets' behavior indicates they believe their co-orbital system is a useful capability which must be periodically exercised to retain its availability in time of conflict.

[CLERK'S NOTE.—End of questions submitted by Mr. Sabo.]

Mr. MURTHA. Mr. Young has some questions for the record for you to answer.

[CLERK'S NOTE.—Questions submitted by Mr. Young and the answers thereto follow:]

PILOT CONTINUATION PAY

Question. Mr. Secretary, this Committee was strongly supportive of your request last year for a pilot continuation pay program to try and help with the serious decline in pilot retention rates. In your statement, you point out that you lost 800 more pilots last year than you produced. That can be a very expensive proposition. Do you have any early indication of how much the Aviation Continuation Pay (ACP) program you are beginning is going to help with that program?

Answer. The Air Force analyses indicate that our fiscal year 1989 ACP program, if continued through fiscal year 1994, would reduce the projected shortfall of 2,450 pilots by approximately 60 percent to just over 1,000 pilots. It is too early to tell how close the actual take rates are to our projections because we offered a 90-day grace period that runs from January 1, 1989 to March 31, 1989. The grace period was established so that our pilots would not be forced to make a hasty decision on whether or not to accept the ACP bonus. We believe many pilots will use the full grace period before signing up for ACP. Hence, at this point, much of our data are preliminary and may not represent how well the ACP program will help solve the pilot shortage. As of March 2, sixty percent of the pilots eligible for the bonus from January 1 to March 31 have signed contracts with the Air Force. However, the response from the young pilots has been lower than we expected with only 35 percent of the eligible pilots accepting to date. These pilots are eligible for the highest ACP contract amounts and are the most critical to the success of our retention efforts.

ONE PERCENT REDUCTION IN COLA

Question. Mr. Secretary, the revised Bush budget proposes to eliminate the January 1990 Cost-Of-Living Adjustment (COLA) for military and civilian retirees and to reduce future COLA's by one percent less than the Consumer Price Index (CPI). What impact will that have on the morale of your career service personnel and those retirees who are subject to recall?

Answer. This budget proposal represents another change to the military retirement system contrary to stated Congressional intentions after the enactment of the Military Retirement Reform Act (MRRA) of 1986. It would affect not only active duty members and retirees, but also widows who receive annuities from the Survivor Benefit Plan (SBP). Dollar impacts on people for this proposal are substantial. The loss of lifetime retirement earnings for those active duty members who were previously grandfathered with the enactment of the MRRA in 1986 is approximately $67,000 for officers and $33,700 for enlisted members (measured in 1989 dollars). This is an eight percent reduction in lifestream retired pay. Such a financial loss cannot help but have a serious negative impact on morale. In fact, the financial disincentive for those nearing key retention years is equal to or greater in value than current retention initiatives such as the pilot bonus and selective reenlistment bonuses.

The proposal will affect morale negatively in other ways as well. It recants promised protection for grandfathered active duty members, retirees, and SBP annuitants when Congress passed the Act in 1986. Such a breach of faith will cause active duty members, regardless of when they first entered the Air Force, to think about or value their retirement entitlement with greater uncertainty. Their faith in the military retirement system will again be damaged. Undoubtedly, such uncertainty and damage will lead to a destabilizing of the retirement entitlement, just the opposite of what Congress intended with the passage of the 1986 Act. Our initial analysis suggests the negative retention effect caused by such uncertainty could be as much as ten times greater than the disincentive due just to the dollar impacts of the CPI minus one percent proposal.

Finally, this proposal singles out a particular group of veterans and their survivors. For example, a 26 year veteran retired from active duty will be affected, but a former member who served only three weeks in basic training and was injured and receives a Veteran's Administration payment will not be affected. It also singles out this particular group of people for inequitable treatment to bear the burden of budget deficits when others, such as Social Security recipients, are exempt.

STABLE FINANCIAL PLANNING

Question. Mr. Secretary, many people are concerned about the inefficiency of the way we procure weapons system. If you were to believe everything you read or hear in the media, you would come to the conclusion that the Defense Department and in your case the Air Force, were among the most inefficient of procurement managers. That is why one of the statements in your prepared testimony is so interesting. You say "In the 10 to 15 years it takes to develop and field a new weapon system, there may be several substantial swings in defense funding. The inefficiency associated with this lack of stable financial planning dwarfs all other causes of inefficiency in defense procurement". Can you tell us what you mean by that statement? Is the roller coaster funding the Congress provides the department causing inefficiencies of a great magnitude and can you provide us with a few examples?

Answer. The Air Force and DoD, like other large organizations, must have a long range planning process to provide coherence to our programs. Tremendous inefficiencies are introduced into individual program plans and business strategies when significant changes are made to topline DoD funding. Individual programs must be balanced with competing priorities within DoD and respond to your direction. Year-to-year changes that occur because of fiscal realities change total program cost significantly because they invalidate planning assumptions.

As a partial solution, we have submitted a 2-year budget since fiscal year 1988 (in accordance with the Grace Commission); however, we have yet to see a second-year appropriation. I am certain our planning mechanism can be improved, but I am also fearful that a last minute bit of budgetary pragmatism can still destroy a year's worth of planning. As an example, let us look at our submissions from fiscal year 1986. We will examine the planning year fiscal year 1990 in each of these submissions. First of all, the dollars for the current fiscal year 1990 request before you have dropped by $41.9 billion (29 percent) since it was the last planning year in our fiscal year 1986 request. Even more telling, procurement has dropped by $33.1 billion (49 percent) as compared to $5.05 billion (16 percent) for O&M. This clearly illustates the problem and shows why we have an instability in procurement.

Now let us look at some specific examples of major procurements: the F-15, F-16, C-17, and Maverick. The F-15 program incurred a $1.0 billion (40 percent) reduction. The F-16 took a $1.8 billion (36 percent) reduction. The C-17 lost $1.1 billion (35 percent). Maverick has sustained a $0.7 billion cut which translates to 77 percent. When programs are forced into reductions as extensive as these, inefficient production rates and increased program costs become the rule of the day. These are affordability issues that affect acquisition efficiency—no acquisition system no matter how efficient in concept could mitigate fiscal changes of this magnitude.

Finally, let's talk about a success story—LANTIRN. In fiscal year 1985, we made LANTIRN a priority program and consciously fenced it off from budgetary cuts. Our decision provides us with a showcase success. LANTIRN is on time and on target despite its early technical hurdles. This is directly attributable to our decision. It was revisited many time over the past years and always affirmed because of the serious impact to both time and schedule that would have accompanied funding instability. We like it, the contractor likes it, and the public got good value.

In short, we have the best acquisition people in the government, but before we can do our job properly, i.e., across-the-board, we need to have a common long-range understanding between us.

WC-130 HURRICANE RECONNAISSANCE

Question. Mr. Secretary, several weeks ago the Air Force decided to continue the mission of providing air reconnaissance into hurricanes in the Caribbean, Gulf and Atlantic, which is very good news to those millions of people who live in hurricane prone areas. As you know, we have maintained for years that the airplanes provide much more accurate information than satellites and data such as wind speed, barometric pressure etc. which a satellite can not provide. The bad news is that the mission is being downgraded to a reserve squadron, with no active planes involved and the number of planes dedicated to this mission is being reduced by four. Can you assure this Committee that with the new force structure, you will be able to provide the same capability as with the old one?

Answer. The proposed Air Force Reserve unit of eight aircraft which will have 1000 flying hours allocated for storm reconnaissance will provide the same capability as the old force structure to meet the Caribbean, Atlantic, and Gulf of Mexico requirements. The Department of Commerce (DOC) established requirement is for up to five sorties per day which can easily be accomplished with the force structure of eight WC-130s. Also, the 1000 hours of flying time is adequate as over the last ten years both the USAF and DOC together have flown an average of 933 flying hours per year meeting Atlantic, Caribbean, and Gulf of Mexico weather reconnaissance requirements. The USAF flying hour program has averaged only 808 hours per year.

[CLERK'S NOTE.—End of questions submitted by Mr. Young. Questions submitted for the record and the answers thereto follow:]

BUSH BUDGET AMENDMENT

Question. Mr. Secretary, what is the status of the Bush Administration budget amendment process as it relates to the Air Force?

Has the Air Force been given a total target reduction number?

Answer. Yes, the Services have received preliminary fiscal guidance and are currently working options to remain within these fiscal limits. The Air Staff is currently assessing options with regard to this reduction guidance in determining its position. Final decisions have not as yet been made.

Question. Several sources recently have recommended that reducing readiness may be one of the best ways to cut money from the defense budget. What is your assessment of such proposals?

Answer. We believe that reducing the readiness accounts to cut money from the defense budget would be a mistake. These vital accounts are directly related to our OPTEMPO: flying hours—which we have set at the minimum acceptable levels—spare parts availability, training ranges, training munitions, etc. The focus of our troops' daily activies is readiness. Further cuts would send a clear message that we do not consider readiness important. Such a signal would have a harmful effect on morale and retention.

We recently experienced the results of failing to adequately fund the readiness accounts. In the seventies, we took such an approach and found ourselves with a steady decline in the readiness of our forces. Ultimately, a hollow force results. It takes years to recover and to again attain the readiness levels essential to fielding a credible and effective deterrent force.

Question. Lt. General James McCarthy has been reported as saying a no growth budget could lead to 24 fewer F-15Es, 50 less F-16s, 3 less C-17s, 11 less MX missiles, and 1,600 fewer AMRAAMs. Do you agree with his assessment?

Answer. Lt. General McCarthy was addressing the amount of money that might need to be cut from Air Force Total Obligation Authority (TOA) to get to a no growth budget. He was illustrating how a cut might be made in force modernization by posing a rhetorical question: How much is a billion dollars in force modernization? The numbers attributed to General McCarthy were given as examples. If $1.0 billion had to be cut from Air Force Total Obligation Authority (TOA) and the Air Force chose to reduce the F-15E procurement, then $1.0 billion in fiscal year 1990 equates to approximately 24 F-15Es with their support equipment and initial spares.

All of the cited numbers are samples of cuts in the force modernization area. Should the Air Force be forced to reduce its Total Obligation Authority to no growth, tradeoffs would have to be made among many areas—readiness, sustainability, modernization, etc. This was precisely the point General McCarthy was making—future trends include less for defense, forcing tough resource tradeoffs. The examples provided were intended to demonstrate the types of choices that might have to be made to get the Air Force to a zero real growth budget.

ELECTRONIC COMBAT

Question. Last month, in a speech before a trade symposium, General Bernard Randolph, Commander of the Air Force Systems Command, said "The electronic countermeasures we do is a disaster. Software, the pacing technology in fighters, is an Achilles' heel. On software schedules, we've got a perfect record: We haven't met one yet".

This situation has not improved much in recent years despite great expenditures of money and supposed increased management attention. The B-1B ECM problems are probably the best known, but nearly every Air Force EW program has experienced cost schedule and performance problems.

Why can't the Air Force do better with its Electronic Warfare (EW) programs?

Answer. The Soviet threat includes a huge number of diverse types of air- and ground-based missiles. Basic electromagnetic principles prevent a simple brute power solution to this threat, and we have been forced to rely on technological solutions that often push the state of the art. Development of software-based Electronic Combat (EC) systems has proven to be significantly more difficult than traditional hardware systems. EC is largely reactive. When the Soviets field a system, it normally requires several years for us to acquire enough empirical data to initiate design of a countermeasure. It takes additional years to complete the design and produce the defensive hardware. By this time, new threats will have appeared and we again lag in our ability to counter them. Contractors are always optimistic about their abilities to produce effective countermeasures and the Air Force could have done a better job at evaluating their progress. In the past year, we have focused a great deal of attention on EC system development and have allocated additional resources to improve our requirement/design/test process at the front end of any EC system development.

Question. What specific actions have been taken in the past year and what are planned to improve the situation?

Answer. Solving the Electronic Combat (EC) systems acquisition problem requires a multifaceted approach. Components include senior leadership attention, centralized Air Force management of the EC development process, a more realistic approach to EC requirements, improved testing capabilities, and improved reliability and maintainability (R&M). On March 9, 1988, we convened a four-star review of EC programs and requirements. The meeting heightened our senior leaders' awareness of the complexity of the problem and our need to make major improvements. The Major Air Commanders have since reexamined their EC requirements and identified capability tradeoffs that could bring their efforts within the bounds of affordable cost and available technology. Programs that were not ready for production because of shortfalls in R&M or testing were identified, and many were reprioritized, rephased, redefined, or cancelled. Our EC acquisition process has been flawed, with much of the management responsibility split among various development, testing and logistics agencies. To focus future EC developments, the Air Force took the following additional actions. The newly established Air Force Electronic Combat Office is composed of a joint cadre of experienced EC acquisition managers, engineers, logisticians from both Air Force Systems Command and Air Force Logistics Command. This office, in conjunction with the Air Force Electronic Warfare Center, will undertake up-front analyses of requirements, technologies, risks, payoffs. Testing capabilities will be improved through a newly developed master plan for the development of a core of essential facilities. This combination of actions and senior leadership attention will improve our EC acquisition record.

Question. General Randolph largely blames industry for EW problems, but doesn't a lot of the problem rest with the Air Force itself?

Answer. While a good part of the problem has been with the ECM industry, the Air Force has recognized its own shortcomings and taken action to improve the situation. We believe that the actions discussed in the closed testimony will go a long way toward making future programs more successful.

Question. General Randolph also said that the programs which continue to miss operational capability deadlines and fall short of requirements will be among the first to be cancelled. Given the no growth budget climate and the considerable problems with the B-1B's Defensive Electronic Countermeasures system, why should any more funds be expended to try and fix it?

Answer. The B-1B aircraft is already fielded. We have made a major investment in the B-1B and it is performing its deterrent mission today. To maintain that deterrent in the future, we must fix the deficiencies in the ECM system. Cancelling planned upgrades that eliminate these deficiencies would result in a continual decrease in its penetration capability. As such, the Air Force has developed a program to establish a baseline configuration, add a stand-alone Radar Warning Receiver (RWR), and define a support infrastructure.

ICBM MODERNIZATION

Question. The President recently informed Congress that no decision would be made on Small ICBM versus rail based MX until at least April 3. The fiscal year 1990 budget requests research and development funding of $789 million, all for MX, none for Small ICBM.

General Welch, can you give us any insight into the considerations taking place in the Pentagon on these programs?

Answer. DOD is working with the President and his advisors to conduct a broad national security review. ICBM modernization options will be evaluated as part of the review process. It would be premature to comment on any specifics being considered.

Question. What is the impact on the MX contracts?

Answer. If the President's strategic review allows, incremental funding from the withheld $350 million, starting April 3, could sustain the Rail Garrison program for the remainder of the fiscal year. Administrative procedures require the Air Force to start the funds release process by March 15, 1989. Approximately $60 million per month needs to be released to keep the ICBM Modernization program on schedule and within the fenced $350 million, and to maintain the June 1992 IOC.

Question. What is your plan for terminating Small ICBM contracts?

Answer. The plan is straightforward. In April 1988, all full-scale development contracts were restructured to conclude on September 30, 1989, and unless changed, will not be funded after that date.

Question. The more the Air Force studies the Small ICBM, the more its cost drops. A recent press report says that the Congressionally directed Rand report has been briefed to the Air Force leadership showing the cost of 500 Midgetman missiles to be $29.8 billion, which is $7 billion below the official Air Force estimate.

Can you provide us details? Would the cost be even lower for dual warhead missiles?

Answer. The December 1986 Milestone II Decision baseline program total acquisition cost was $38.4 billion (in fiscal year 1988 dollars). By July 1987, full-scale development RDT&E competition and associated updated production estimates reduced the baseline program total acquisition cost of $33.8 billion. The January 1988 program restructure further reduced total acquisition cost to $30.7 billion. As of the October 1988 technical restructure, the program acquisition cost stands at $26.8 billion ($23.8 billion acquisition cost-to-go with $3.0 billion spent through fiscal year 1988). The total life cycle cost-to-go is $27.7 billion. This includes $3.9 billion of 15-year operations and support (C&S) costs and is comparable to the $29.8 billion fiscal year 1988 Rand life cycle cost-to-go. Areas of cost reductions for the January 1988 restructure and the October 1988 technical restructure are provided below.

The 15-year cycle cost-to-go for 250 two-RV Small ICBMs in hard mobile launchers is $18.7 billion (FY 1988 Dollars).

Cost reductions

	Billions
January 1988 restructure—3600 (RDT&E):	
Technical base management system	$0.1
Alternative inertial navigation systems decision	0.8
General support	0.2
Dual propulsion source	0.2
Total	1.3
3020 (Production):	
Reduced engineering change order	0.6
Reduced ceiling	0.4
Assembly and checkout spares, publications	0.3
Passive access denial system	0.1
General support	0.1
Reentry vehicle line open	0.1
Post-boost vehicle	0.2
Total	1.8
October 1988 restructure—3600 (RDT&E):	
Reduced flight tests	0.3
Use DT&E instrumented range safety system	0.2
Less test units	0.1
Less ground test missiles	0.1
Revised estimates	0.3
Reduced engineering change order	1.0
General support	0.2
Second source	0.1
Total	2.3
3020 (Production):	
Reduced aging and surveillance hardware	0.1
Instrumented range safety system subsets	0.1
Logistics support equipment	0.4
Reduced engineering change orders	0.5
Guidance and control tooling	0.1
Reduced ceiling	0.4
Total	1.6

Question. The same article suggests that recent Air Force Ballistic Missile Office (BMO) cost estimates for Midgetman are even lower than Rand. Please comment. Also, please compare the official Air Force cost estimate for Small ICBM to the recent Rand and BMO estimates in detail.

Answer. The current Small ICBM baseline program 15-year life cycle cost-to-go following the October 1988 Technical Restructure is $27.7 billion (in fiscal year 1988 dollars). The following figures compare the Rand and Air Force/BMO estimates in detail:

500 SMALL ICBM AT 3 MINUTEMAN BASES

[In billions of dollars]

	Rand	AF/BMO	Delta
Fiscal year 1988:			
RDT&E	3.3	2.9	+0.4
Production	19.4	18.8	+.6
MILCON	2.0	2.1	−.1
O&S (15-yr LCC)	5.1	3.9	+1.2
Total	29.8	27.7	+2.1

RDT&E differences:	
Post-booster vehicle	+0.2
Additional risk	+0.2
Production cost drivers:	
Guidance spares	+1.5
Propulsion stage	+0.2
MILCON differences:	
Due to rounding	−0.1
O&S differences:	
Guidance set maintenance	+1.2

The variations between the estimates are manifestations of the differences in costing methodology discussed earlier. The RAND estimate of about $30 billion is about 10 percent higher than the BMO estimate, but given the inherent uncertainties, we judge the estimates to be essentially equivalent. (Source: Rand report.)

C-17 PROBLEMS

Question. Potential C-17 development problems are surfacing. This is disturbing since C-17 was held back from production a few years ago to allow the C-5B program to go ahead. The "extra" time in R&D should have eliminated major problems.

Is the Air Force totally committed to the C-17 program without stretch-outs?

Answer. The Air Force is committed to the acquisition of the C-17, since it provides essential capability and is the most cost-effective option to meet the congressionally mandated goal of 66-million ton-miles per day.

Overall Air Force budget levels and priorities will dictate whether or not the C-17, or any program for that matter, must be stretched.

Question. GAO indicates that the C-17 development contractor is "currently $400–500 million above the taget price for full-scale engineering development. The government will pay 80 percent of the amount above target." What is the problem?

Answer. The Douglas Aircraft Company (DAC) projected price is $417 million over the target. This is caused by contractor weight control efforts, avionics hardware/software development challenges, and capacity-driven manufacturing problems. The weight control activities have led to redesign requirements with attendant engineering and manufacturing expenditures. This was compounded by a lower than anticipated yield from newly hired engineers. Several subcontracts, particularly avionics (including such systems as the Mission Computer and Electronic Flight Control System (EFCS)), exceeded budgeted amounts. However, DAC has reached an agreement with the EFCS contractor for liquidated damages should the EFCS deliveries miss the target dates.

Question. How much additional RDT&E funds did the Air Force budget this year in fiscal year 1990 and beyond that was not contained in last year's five year estimate?

Answer.

	Fiscal year—						Total
	1989	1990	1991	1992	1993	1994	
December 1988 SAR	3,297	955	504	462	129	14	5,361
December 1987 SAR	3,358	655	329	174	285	152	4,948
Delta	(61)	300	175	288	(156)	(138)	413

Question. Will the first C-17 meet the program weight goal? At what point in production will it be met? Will the initial C-17s have to be "retrofitted"?

Answer. It must be recognized that there is no contractual program weight goal on the C-17. The program is designed to meet performance goals. A special emphasis has been placed on weight control over the past three years. Even though we cannot say the weight problem is completely behind us, significant progress has been made. We track the weight status on production aircraft number P-5, which will be the first aircraft delivered to an operational base. P-1 through P-4 will be used in the test program. These four aircraft will be brought up to the P-5 configuration (weight, deinstrumentation, and changes resulting from flight test) to the maximum practical extent prior to delivery to the Air Force. Costs for this update are included in the budget.

Question. Will the Air Force achieve the August 1990 first flight?

Answer. Progress on assembly of the first aircraft (T-1) is about 12 to 16 weeks behind schedule due to late tooling and parts manufacture and avionics subcontractor performance. Therefore, the first flight date is at risk, but the exact slip is dependent upon how much of the 12 to 16 weeks can be made up.

Question. Preliminary GAO analysis indicates that some additional slippage in first flight is likely. How do you assess the concurrency in the program? (Before the first flight 12 aircraft will be on contract. By the end of the flight test program, 9 aircraft will be delivered and 18 on contract. If flight testing slips 6 months, 13 aircraft will be delivered and 27 started assembly).

Answer. The Air Force undertook concurrency on the C–17 program due to the low technical risk associated with C–17 development. Essential performance concepts were demonstrated during the YC–15 flight test and extensive wind tunnel testing correlated with the YC–15 data. Commercial engines are being used so there is no development risk there. The C–17 has the most extensive warranty program in DOD to include warranties on structures, engines, major line replaceable units, and landing gear. The contractor has also guaranteed availability, performance, reliability, and maintainability parameters. Low risk concurrency avoids significant costs by avoiding a production break and program stretchout. The R&D aircraft (T–1, Static and Durability) are built on the same hard tooling as the production aircraft. Recently, we have negotiated an event-based contract award concept to further reduce risk, i.e., annual production contracts will not be awarded until the contractor satisfactorily completes certain major events.

Question. Is the C–17 program currently meeting schedule? Are each of the subcontractors meeting schedule?

Answer. Due to a 12 to 16 week slip in assembly as well as some schedule problems with avionics integration, first flight may be delayed. However, the October 1991 delivery of the first operational aircraft and the subsequent initial operational capability should be achieved on time. Subcontractor schedules are considered in the risk assessment for first flight.

Question. Is there an overrun in procurement as well?

Answer. There is a projected overtarget price condition funded for $32 million (5 percent) for FY 1988 (Lot I) and $40 million (5 percent) for FY 1989 (Lot II). These amounts represent the government's share (80 percent) under the fixed-price-incentive (FPI) type contract. Target values for FY 1990 and beyond have not yet been negotiated.

Question. Provide for the record a breakout by fiscal year of the total $5.4 billion C–17 RDT&E budget as reflected in the latest SAR report compared to the C–17 development contract at target and at your currently estimated-at-completion value. Explain in detail what the remaining funds are for. Be definitive about the ECO allowances.

Answer. The C–17 $5.4 billion budget is comprised of $4.8 billion of Douglas Aircraft Company contract requirements (includes $604 million of anticipated overtarget allowance) and other government costs (OGC) of $513 million (includes $106 million ECO). The budgeted ECO for this program represents 2 percent of the total full scale development budget which is well below the normal 10 percent budgeted for most programs. This is due to the low technological risk.

[Then year dollars in millions]

	Fiscal year—						Total
	1989 and prior	1990	1991	1992	1993	1994	
Target	3153	547	351	189	4		4244
Overtarget		253	66	202	83		604
CFE [1]	3153	800	417	391	87		4848

[Then year dollars in millions]

	Fiscal year—						Total
	1989 and prior	1990	1991	1992	1993	1994	
OGC	144	155	87	71	42	14	513
Total (SAR)	3297	955	504	462	129	14	5361

---

[1] Contractor Furnished Equipment.

Our estimating and financial planning is done at an aggregate cost level which does not distinguish between target vs overtarget funding. We have attempted to show the requested fiscal year breakout by approximating a target/overtarget split using the latest Contract Funds Status Report (December 1988).

CLOSE AIR SUPPORT (CAS)

Question. There is much controversy about the need to replace the Air Force's A-10 close air support aircraft. The fiscal year 1990 budget contains funds to begin a new aircraft development program.

Why is a new aircraft to replace the A-10 necessary? Can we really afford one?

Answer. The first question is best answered by citing the memorandum of agreement signed by the Army and Air Force Service Chiefs and Secretaries on April 8, 1985:

"The Army and Air Force have reviewed Army doctrinal development and the associated threat environment projected through the mid-1990s and agree that improved Close Air Support capability is required to meet evolving Army CAS requirements. An essential element of this capability is a more effective and survivable fixed-wing aircraft to be fielded by the Air Force. The new CAS aircraft . . . must be appropriately configured and equipped to attack surface targets in close proximity to friendly forces through coordination with the ground force scheme of maneuver and fire support. (CAS) units must continue the extensive Army-Air Force training program established by current designated close air support forces and become an integral part of the coordinated surface maneuver plan.

"The (new CAS aircraft) must be capable of executing the close air support mission on the non-linear battlefield across a broad spectrum of combat scenarios and threats ranging from the friendly rear area to the traditional main battle areas and the deep maneuver arena. To be effective and survivable throughout the battlefield, the (new CAS aircraft) must possess basic airframe characteristics and complementary systems needed to penetrate and operate within enemy territory in concert with supporting air and land forces. Additionally, the (new CAS aircraft) must be able to operate day/night under-the-weather.

"During joint air-land combat operations, the [new CAS aircraft] will normally be employed in its primary role as a designated close air support aircraft. Operational characteristics which enable the (new CAS aircraft) to perform its primary mission in the high threat battle area environment also provide inherent capabilities needed for air interdiction (AI). The USA/USAF Agreement for the Joint Attack of the Second Echelon (J-SAK) provides doctrinal guidance for employment of the [new CAS aircraft] in the AI role.

"The timely fielding of a follow-on CAS aircraft dictates that the . . . program focus on existing airframes available for procurement in the late 1980s."

As to the second question, the Air Force can afford a follow-on if we focus on a modified in-service aircraft.

Question. The Packard Commission emphasizes weapon system upgrades rather than new developments. Why would an upgraded A-10, to include more powerful engines for greater speed and a FLIR (forward looking infrared radar) for night attack, not meet your requirements?

Answer. The Air Force agrees with the Packard Commission and has emphasized modified and upgraded aircraft since the follow-on close air support (CAS) aircraft requirement was established in 1985. The A-7F, the A-10C, and the A-16 are all proposed upgrades. The Air Force has proposed to modify part of the A-10 fleet to meet portions of the CAS mission requirement through the 1990s with upgrades that are operationally prudent and cost-effective. These upgrades center on increased avionics enhancement and limited night capabilities, and do not include new engines or procurement of a FLIR.

A fully modified A-10 (A-10C+ with new engines, avionics, and FLIR) cannot meet the entire follow-on CAS requirement in terms of mission and cost-effectiveness. Several engine types have been evaluated on the A-10C with a non-afterburning F404 engine offering the best performance. With these engines the A-10 would achieve a modest increase in maximum speed and improve sustained maneuverability. These factors in most cases improve survivability. Unfortunately, the radar and infrared signatures of the A-10A will not be decreased with this modification. The radar signature of the aircraft is very high making it one of the most vulnerable fighters in our inventory.

The real problem is the A-10 airframe. It is very high drag and designed to operate at slow speeds. By upgrading the engine, fuel efficiency becomes very poor; the A-10 would suffer a 50 percent reduction in combat range, loiter time, and payload capacity. FLIR would certainly improve effectiveness but may not be cost-effective in the high threat arena because the aircraft would still not survive. We are analyzing different methods for improving the A-10's effectivneess at night for lower threat environments. However, an engine change restricts the A-10's scope of operations so drastically that any improvements in mission effectiveness achieved by avionics changes are negated.

The Air Force will do what it can to use existing A-10 assets for future CAS either by modifications to allow operations in lower threat environments or changes in the aircraft's mission. However, the requirements of the future high threat battlefield dictate that the Air Force look beyond sole reliance on modified A-10s.

Question. Last month, the former head of the CAS mission area review group recommended a program to make F-16s more effective in the CAS mission. The modified F-16s—designated A-16—could be used to replace existing CAS aircraft. Do you agree with the observations and recommendations of the CAS mission area review group leader, Don Fredericksen, contained in his memorandum to Acting Secretary Taft? Specifically, do you favor retiring A-17s as Fredericksen recommended, instead of A-10s?

Answer. The Air Force does not completely agree with every observation and recommendation made by Mr. Fredericksen in his memorandum because some of his assumptions are inconsistent with the bulk of the analysis presented to the close air support mission area review group (CASMARG). However, his recommendation to initiate air-to-surface capability enhancements (i.e., creating an A-16) is supported by all the studies and will be included in the upcoming Air Force amended budget submission. The Air Force budget will include another recommendation from Mr. Fredericksen to begin an avionics upgrade on a limited number of A-10s. It makes sense to upgrade some of the A-10 forces because the A-10 will still be in the force structure performing close air support (CAS) for a number of years regardless of the eventual solution of the CAS issue.

The Air Force position on the A-7F is that we want to fly the prototypes before we make a production decision. However, given the known operational life of the A-7D, our programs must reflect A-7D retirement until such a decision is made.

Question. Why do you favor the A-16, an attack variant of the F-16, for the new close air support aircraft?

Answer. The Air Force favors the A-16 as a solution for close air support (CAS) because it meets the stated requirements of the Army and the warfighting commanders in the field of the mid-1990s and beyond. The A-16 represents a 200 to 300 percent increase in mission effectiveness over the current A-10, and is the most cost-effective solution as well.

Question. The A-16 concept is to have a high speed, lightly armored aircraft that could be used for a number of roles including close air support. This differs from today's A-10 which is slower, but highly armored and dedicated to the tank killing mission. How do Army ground commanders feel about losing the A-10s?

Answer. All current multi-role F-16 units already perform close air support (CAS) as a secondary or tertiary mission. Speed is essential to survival in high intensity conflicts and does not degrade target acquisition or target destruction given already existing technology for accurate navigation, rapid communication, and precise target cuing. The A-16 units will not be tasked as multi-role (air-to-air and air-to-ground) fighters, but will be specifically designated and trained to perform CAS and the related mission of battlefield air interdiction (BAI).

The current A-10 performs the full spectrum of CAS, including the killing of tanks, which is not a military mission, but rather a task. The A-10 is also currently tasked to support search and rescue and to perform shallow BAI in some theaters of operation. Such flexibility is necessary to meet the needs of operational commanders and to perform a variety of tasks with a reduced fighter force structure.

There will be A-10s in the force through the 1990s. The Army has been fully and intimately involved in the CAS modernization effort since 1982. Their requirements are the driving factor and they support the Air Force CAS program.

Question. Why not use AV–8B Harriers, like the Marines do?

Answer. The Air Force evaluated the AV–8B several times before the current round of close air support (CAS) studies. The Harrier is an excellent CAS and strike aircraft which employs speeds similar to the F–16 and meets the specific needs of the Marine Corps. Its vertical/short takeoff and landing (VSTOL) characteristic provide rapid ship-to-shore build-up in support of amphibious operations and other contingencies. However, these same performance characteristics come at the expense of range and payload capability even when operated from fixed airfields. This renders the AV–8B less than ideal for the Air Force to support a theater of operations with CAS. It cannot support cross-corps or cross-army group tasking, and each sortie brings less firepower to the battle. While it clearly meets Marine Corps needs, the AV–8B does not meet Air Force needs for the Central Region.

Question. The Air Force plans to retire the A–10s with much more remaining life than other aircraft, like the F–4. Is this wise? Why are you willing to scrap the A–10s prematurely? Provide for the record statistics on hours of life used and remaining in the A–10 fleet (including OA–10s) compared to the F–4 aircraft history.

Answer. The A–10 was originally designed and built for low intensity conflicts and was intended to replace the A–1E. Modifications and the adoption of low altitute tactics enabled the Air Force to use the A–10 for higher intensity scenarios. In fact, our proposed avionics upgrades will permit it to continue to fulfill some portion of the close air support (CAS) requirement through the 1990s. However, even an upgraded A–10 cannot be expected to meet the full requirements of operational commanders in high intensity arenas. Therefore a balance has been struck between upgrading a portion of the A–10 fleet and initiation of a missionized, more capable A–16.

There is a significant difference between the normal oprational life of a fighter aircraft (20 to 22 years) and the airframe life as defined by flight hours until expected structural failure. The threat, employment concepts, operational needs, force structure (i.e., resources), competing requirements and good military judgment must ultimately determine operational life. F–100s still exist that have flight hours left, but it would be unwise to continue them in operational service because the real risk is failure to accomplish the mission. Likewise, the Air Force will retain those A–10s which can be prudently used in some CAS scenarios and forward air controller tasks. That is why the Air Force tracks both the average age of its fighters as well as airframe life—both are indicators of fighter health and modernization.

The statistics on A–10 and F–4 follow:

	Fiscal year—					
	1989	1990	1991	1992	1993	1994
F–4 average age	18.0	19.0	20.0	21.0		
A–10 average age	8.8	9.8	10.8	11.8	12.8	13.8

Current F-4 expected structural life = 13,000 hr.[1]
Current F-4 average hours used = 4,500 hr.
Current A-10 expected structural life = 20,000 hr.[1]
Current A-10 average hours used = 2,600 hr.

---

[1] Assumes all structural weak points can be modifed in accordance with approved technical orders.

A-7 PLUS PROGRAM

Question: Last fall, when the planned 1990 buy of F-16s was 120, General Russ, head of Tactical Air Command, was willing to devote nearly $100 million from the F-16 production line to the A-7 Plus program. The ultimate President's budget, however, contains no procurement for the A-7 plus.

What kind of message do you think this sends to the Congress on the level of Air Force commitment to the A-7 Plus program?

Answer: The message is that the decision on the future of the A-7F should await the outcome of the flight test evaluation. Meantime, the Air Force intends to preserve the option to procure the A-7F.

Question: When do you expect the first flight in the A-7 plus program and what impact has the recent crash of an A-7 due to wing problems had on the program schedule?

Answer: The YA-7F prototype program contract called for a first flight in May 1989. The expected first flight is currently 8 to 10 weeks behind schedule. The contractor, LTV, is evaluating changes that would achieve a first flight in July. The Air Force is currently assessing LTV's efforts. In the case of the recent A-7 crash, the cause of the fatigue failure is still under investigation. Until more is known, it is not possible to assess the impact of this accident on the A-7 program.

Question: If the A-7 Plus program is not continued, what will happen to the existing A-7 assets?

Answer: In accordance with the current Air Force program, they will be retired from the general purpose fighter force during the 1992 to 1996 time frame. Their final disposition is yet to be determined.

NATIONAL AEROSPACE PLANE (NASP)

Question: The budget requests approximately $300 million for DoD in fiscal year 1990 for continued work on NASP.

What is the status of the NASP initiative?

Answer: The National Aero-Space Plane (NASP) program is in Phase II of a three phase program. The objective during this phase is to develop the enabling technologies for an entirely new generation of flight vehicles, including space launch vehicles capable of single-stage-to-orbit with horizontal takeoff and landing, and hypersonic aircraft capable of long range hypersonic cruise within the atmosphere. The requisite technologies will be integrated into the design and fabrication of an experimental aircraft, the X-30, for flight test and demonstration during Phase III of the program.

The current phase (Phase II) involves development and demonstration of technologies sufficient to support building and testing the X-30. The planned milestone for a decision to commence Phase III (building and flight testing of the X-30) is September 1990. This would lead to a first flight in fiscal year 1995 and a demonstration of single-stage-to-orbit in fiscal year 1996.

The NASP program is making excellent technical progress. All indications are the program can meet its goals assuming adequate funding continues. Analysis and design work being performed by the government/industry team continues to validate program feasibility, and no insurmountable technical obstacles to designing, building, and testing the X-30 have been identified.

Question: Explain what has been done with the contractors to more sharply focus the collaborative research effort on materials.

Answer: In order to assure the satisfactory and timely development of the National Aero-Space Plane program, a fully organized and focused materials and structures technology program was initiated in 1987. A comprehensive Technology Maturation Program Plan for Materials was developed in October, 1987, detailing the activity necessary to insure materials availability to match the schedule requirements. Recognizing the combined challenge of limited funds, difficult development tasks and an aggressive schedule, an innovative approach to NASP materials development was undertaken. A consortium of the five principal competing contractors performing in NASP Phase II was formed in early 1988 to take materials out of the competitive arena. Each of the five contractors was assigned primary responsibility for directing materials developments in one of five classes of materials. The consortium focused on: (1) Titanium Aluminides (Ti_xAl), (2) Titanium Aluminide Metal Matrix Composites (Ti_xAl MMC), (3) Refractory Composites (e.g. Carbon-Carbon), (4) High Creep Strength Materials (e.g. Rapid Solidification Rate Titanium), and (5) High Conductivity Composites (e.g. Copper Alloys). the resources of the consortium companies are pooled and the results of the consortium's efforts are shared among the participants, helping to increase the efficiency of the research efforts and accelerate progress.

Objectives of the materials consortium, set in early 1988, were to develop lightweight materials for high temperature use in airframe and scramjet structures, to demonstrate production of these materials in usable shapes and sizes, and to demonstrate fabrication of these materials into complex aircraft and engine parts.

To assure availability of needed materials, the NASP program is investing over $158 million in the materials consortium during Phase II. To date the collaborative management performance of the consortium has been outstanding and good technical progress is being made, particularly on Alpha Titanium Aluminide, nonstructural Carbon-Carbon, Copper Graphite and Advanced Titanium Metal Matrix Composite Fibers.

Question. What is the Air Force's plan to ensure availability of adequate engine test facilities at the times needed?

Answer. Engine test facilities, adequate for NASP development and testing, are available now, or are being upgraded for NASP engine testing during the current Phase II (technology development) of the program. The NASP Engine Test Facility (ETF) at Marquardt in Van Nuys, CA, is running. The ETF at Aerojet will start test runs this month. Both facilities have the capability to test near full-scale NASP engines at conditions duplicating speeds up to 8 times the speed of sound (Mach 8) and altitudes over

100,000 feet. In addition, ten models of subscale engines and full-scale engine components are currently in testing at other government and contractor test facilities around the country.

The ETFs, the current operational facilities and several facilities which will be available in the next year allow testing of full and subscale engines and components over a wide regime of flight conditions—subsonic, transonic, supersonic, and hypersonic. Tests of low speed (Mach 0–3) propulsion systems are being conducted at NASA Lewis Research Center (LRC), the Air Force's Arnold Engineering Development Center (AEDC), and contractor facilities. Transonic/supersonic performance is being investigated in facilities including the Langley Research Center's (LaRC) 16 ft Transonic facility and AEDC's 16T facility. Tests of subscale models of hypersonic propulsion systems are being conducted at the LaRC, General Applied Science Lab (GASL), and Marquardt hypersonic test facilities up to Mach 7. Large pulse facilities are in use for NASP engine model testing covering Mach numbers from 10 to 25; these include tunnels at Calspan, Ames Research Center (ARC), Boeing, and Grumman. Two new pulse facilities for large scale testing will be on line within the next year: the GASL Expansion Tube/Tunnel (NASA facility being reactivated at GASL) and the Rocketdyne Free Piston Shock Tunnel (with six foot diameter test section) which Rocketdyne is building with corporate funds. In addition to the engine test tunnels, continuous flow tunnels are in use for aerodynamic testing of engine components such as inlets and nozzles up to Mach numbers of 22.

These facilities provide experimental data in all regions in which testing can be performed on the ground.

Question. Effective "computational fluid dynamics" computer computations are essential to the NASP. Some scientists feel that the accuracy attainable over the next few years will fall short of NASP requirements for vehicle design and performance estimates. How are you attacking this problem?

Answer. Computational fluid dynamics (CFD) codes adequate for NASP design and performance estimates are available now and are being constantly updated (based on test results) to improve their fidelity. The nation's CFD capabilities have vastly improved over the past two years. Both the government and contractors have refined existing codes and created new codes to bwe validated against test data. The new codes include the CNS Code (NASA-Ames), UPS Code (NASA-Ames), RPLUS Code (NASA-Lewis), USA Code (Rockwell), CFL3D Code (NASA Langley), and Scramjet PNS Codes (SAIC). Existing codes, such as NASCRIN, ARC3D, and AFWAL PNS, have been extensively modified to handle the hypersonic flow over complex aircraft shapes. The Code improvements include: extension to 3-dimensions, real gas chemistry, finite-rate combustion chemistry, more accurate boundary layer modeling, more accurate turbulence modeling, and advanced algorithms to enhance numerical convergence, reducing computing time. In addition, new test facilities (both government and contractor) have been brought on line to supply high mach-number test data and boundary-layer transition test data for use with CFD analyses. There are some areas (such as the location on the vehicle where the air flow boundary-layer transitions from laminar to turbulent) where the accuracy of current CFD codes is not yet as high as might be desired and the prediction methods are inherently conservative. In the case of transition, the analyses predict transition earlier than might realistically be encountered. The contractors' use of this conservative approach results in higher vehicle weights but reduces the potential for unpleasant surprises during flight testing. Finally, it should be noted that some answers will not be known with high confidence until we fly the X-30 (e.g. very high speed scramjet installed performance). Obtaining answers to these difficult questions is the specific mission of the X-30 experimental flight research aircraft.

Question. A September, 1988 internal study includes the following comments by NASP contractors:

"Although the 1994 take-off date might be attainable, 'the dollars scare the hell out of us.' "

"They like the program, but feel the present schedule is wildly optimistic."

How realistic is the NASP funding profile and estimated milestones that the Air Force has presented to Congress?

Answer. The "internal study" date of September 1988 is misleading. The study was almost two years old at the time of publication. The referenced comments are based on the schedule and program structure as it was in 1986. While the comments were not for attribution, it should be noted they included those of an engine company and two airframe companies that were subsequently dropped from the program. Since the time of the comments, the program schedule has been significantly adjusted (one additional year of technology development), the first flight date moved to fiscal year 1995 (a date the current contractors feel is ambitious but achievable), the materials consortium has started (and is producing results), and a wealth of empirical data has been developed. This information, while not available when the contractors made their remarks over two years ago, supports the current ambitious but achievable program schedule.

The program funding profile has increased almost $1 billion since the contractor remarks were make. Planned government (DOD/NASA) investment has increased by almost $800 million (through fiscal year 1996) and contractor investment has increased by at least $200 million (through the Phase III decision to build and fly two X-30s, currently scheduled for late fiscal year 1990). The comment that "the dollars scare the hell out of us" was based on the misconception by at least one contractor (and the "internal study board") that the contractors would continue to cost share on Phase III as they have elected to do in Phase II (technology development). Such was not (and is not) the case.

In summary, the NASP funding profile and milestones are ambitious but, based on the data available at this time, achievable. More detailed studies of the costs for Phase III are being conducted and the results will be available prior to the 1990 Phase III decision. Funding results and the schedule will be updated, if necessary, as we continue to broaden our understanding of the technologies needed to make this important national program a success.

SATELLITE CONTROL NETWORK UPGRADE

Question. Another U.S. Space Command program that is in trouble is the satellite control network upgrade, which originally was to cost $600 million and now is estimated at $1.85 billion.

Who in the Air Force is responsible for this program?

Answer. Air Force Space Command is responsible for the operation of the Air Force Satellite Control Network (AFSCN). Air Force System Command's Space Division is the acquisition agent for the AFSCN.

Question. Is the Air Force satisfied with its progress?

Answer. The challenges involved in the Consolidated Space Operations Center (CSOC), Data Systems Modernization (DSM), and Network programs have been substantial, and have caused delays. Since the DSM and CSOC programs were originally baselined in the early 1980s, operational requirements have evolved. Factors in this evolution include the growth in the number and complexity of the satellite contacts which must be supported and the increase in size and complexity of the DSM software development to over 2.5 million lines of application code. Also contributing to the challenge was the complexity of introducing a second control node (at CSOC) and a new Command and Control System (CCS) (at Onizuka AFB) into the Air Force Satellite Control Network (AFSCN) while simultaneously continuing support of on-orbit satellite operations. Nevertheless, we are satisfied that we understand what must be done to complete transition of the CCS into full operation and to complete the CSOC activation. We are proceeding with those tasks as rapidly as resources and operational considerations permit. In the past year, we have increased the AFSCN satellite contact workload supported by the new CCS from 45 percent to over 70 percent at a contact success rate of over 90 percent. Several satellite programs are entirely suported by the new CCS, with the others progressing through carefully planned transitions. The new CCS fully supported launches of two programs, SDIs Delta 181 mission, and the recent Global Positioning System (GPS) satellite. The GPS satellite was the first launch and orbital control to be conducted with an all Air Force crew using the new CCS at the CSOC. Perhaps more than any other single event, this demonstrated the growing operational maturity of the CCS and the CSOC.

Question. We were recently told by the Air Force Space Command that "some critical capabilities are still having problems." What is the problem, and what is your plan to fix it?

Answer. As with any system as large and complex as the new Command Control System (CCS), a number of problems were discovered as it was transferred from the developmental to operational environment. These include both functional support capabilities for some of the satellite programs (especially some of the more "specialized" or "nonstandard" functions associated with launch or anomaly support) and reliability under some conditions of heavy simultaneous contact loading or degraded communications. While the CCS currently supports over 70 percent of the network's satellite contacts at over a 90 percent contact success rate, it must support the contacts with at least a 95 percent success rate to be considered fully operational. The problems which limit the support capabilities and contact success rate have been identified and prioritized by the operations community, and have been scheduled for closure by the Network SPO under its sustaining engineering program. Of the currently failed satellite contacts, over one-third are attributed to communications, procedural, or other non-CCS problems.

Question. Why is there $1.2 billion cost growth?

Answer. Based on the 1980 estimate of $600 million in the August 1988 GAO study, actual cost growth in the satellite control upgrade effort (Data Systems Modernization (DSM) and Consolidated Space Operations Center (CSOC)) is approximately $900 million. The growth is largely due to evolution of system requirements over the course of the program and schedule extensions caused by funding profile limitations. The $1.2 billion cost growth figure comes from the GAO report which listed the 1980 and 1987 estimates for costs for DSM and CSOC:

A. 1980 Estimate was approximately $600 million:

DSM—$195 million was original contract value when awarded in December 1980.

CSOC—$402 million from a December 1980 Air Force study to provide a minimal satellite control capability in Colorado. This study assumed dependence on Onizuka AFB for Air Force Satellite Control Network (AFSCN) communications and range control/scheduling, minimal training and engineering/integration, and no engineering/administration building.

B. 1987 Estimate was approximately $1.8 billion:

DSM—$477 million estimate to complete DSM.

CSOC—$1.4 billion to complete CSOC. GAO estimate included approximately $300 million of operations and maintenance nonacquisition costs.

C. The actual DSM contract costs at completion:

	Millions
DSM Final Cost (Including $58.5 miilion overrun)	$441.5
Net Incentive fee (Contractor Share of overrun—$17.3 million)	(1.2)
Award Fee Earned	17.4
DSM Cost to Government	457.7

Increases due to:

Evolution of system requirements over the course of the program (increases in the number and complexity of satellite contacts; higher satellite launch rates due to space launch recovery).

Schedule extensions caused by funding profile limitation and the complexity of integrating the new command and control system while simultaneously supporting AFSCN operations.

D. The current estimate to complete the CSOC aquisition (through 1991) is $1.05 billion. This figure does not include operations, maintenance, or sustaining engineering costs. Nor does it include termination costs of the Shuttle Operations & Planning Complex. The CSOC increases are due to:

Redefined Satellite Operations Complex (SOC) configuration with a reassignment of the satellite programs to be based at CSOC. Added launch/early orbit requirements for CSOC assigned programs to allow fully capable node for AFSPACECOM.

Network Control Segment added to allow CSOC to independently schedule/control the AFSCN remote tracking stations and provide a dual-node range capability with Onizuka AFB.

Extensive training program added to support training of CSOC military operating crews.

Evolving technical baseline for communications. Initial 1980 estimate only provided direct CSOC connectivitiy to four remote tracking stations with a link to Onizuka AFB for other communications. Redefined communications architecture making independent CSOC node with direct connectivity to all remote tracking stations. Added a competitive contract phase for communications definition.

Added the Operations Command Center (OCC) to provide CSOC connectivity to the National Command Authorities. Subsequent overrun in OCC software development.

Redefined integration support requirements to include total activation of Falcon AFB and multiple operational capability milestones versus a single initial operational capability (IOC). Extended integration support due to revised program baselines and subsequent schedule slippage. Need to integrate CSOC into the existing AFSCN without impacting ongoing operations and transition satellite programs from Onizuka AFB to CSOC.

Revised estimates for better defined physical security requirements.

Question. The Air Force issued a follow-on, sole source, cost-plus contract to the same company after terminating the original contract with that company after it experienced significant performance problems. Does this make sense to you?

Answer. The Data Systems Modernization (DSM) contract was not terminated after "significant performance problems." The system delivered by the DSM contractor was accepted by the DSM program office according to contractually specified requirements. Approximately 95 percent of the 32,624 specification requirements were satisfactorily demonstrated. The remainder were the basis for a $2.7 million contractor credit to the government during the contract closure in December 1987. The Command and Control Sustaining Engineering (CCSE) contract is an ongoing maintenance and operational engineering support contract awarded in January 1986 (23 months prior to the end of the DSM contract) to support the new Command and Control System (CCS) transition to operational status and provide continuing engineering, maintenance, and modification support. Every system in the Air Force Satellite Control Network (AFSCN) requires contract support of this type. IBM was selected as the CCSE contractor because they were uniquely qualified. They possessed sufficiently thorough knowledge of the new CCS system architecture and software to provide adequate software maintenance and engineering support to critical space programs dependent on the system for launch and on-orbit operations.

Question. What is your plan for competing work in this program in the future?

Answer. To promote competition, the Air Force has directed that IBM subcontract significant portions of the CCSE contract and involve other Network support contractors directly in the "beddown" of the new CCS systems at Onizuka AFB and the Consolidated

Space Operations Center (CSOC). The Air Force intends to compete the CCS sustaining engineering effort as soon as the system completes transition to operational status and qualified alternative sources are available.

Question. A recent Air Force study concluded that the capacity at the Consolidated Space Operations Center (CSOC) for satellite operations, training, and support functions is expected to be inadequate when projected future satellite programs are added to existing programs." Does this mean that even after spending $1.85 billion (three times the original cost estimate), the CSOC facility will be inadequate? Please explain.

Answer. The CSOC is the principal peacetime node for the Air Force Satellite Control Network. As currently planned, it will provide common-user launch and on-orbit support to the Global Positioning System, Defense Support Program, Defense Meteorological Support Program, Defense Satellite Communication System, Fleet Satellite Communications System, and NATO satellites. The fixed portions of the MILSTAR ground control will also be located within the CSOC facility. The CSOC facility will adequately support these satellite systems.

While supporting these space systems, the AFSCN will continue to evolve, as it has over the last 30 years, in order to maintain responsive support to existing and new space systems. As new satellite support requirements for the AFSCN, including CSOC, are identified, we can expect modifications and upgrades to insure compatibility between the space and ground systems. A 1987 Satellite Control Architecture study addressed the "warfighting" needs for satellite control in the year 2015 based on predicted threats and operational requirements. It identified an architecture to be used for study and development of new space systems to allow effective satellite control in a "warfighting" environment. As each space system is designed, satellite control requirements will have to be addressed from a capacity and survivability standpoint in consonance with the recommended architecture, and an assessment performed to determine the impact on existing ground systems. The newly installed CSOC systems will serve the primary needs of AFSCN operations for the remainder of this century. However, continued investment will be required as space continues to become a more integral part of our national defense.

MANUFACTURING TECHNOLOGY INDUSTRIAL MODERNIZATION IMPROVEMENT PROGRAM

Question. This Committee has been a strong supporter of the Manufacturing Technology (MANTECH) and Industrial Modernization Improvement Program (IMIP). These programs leverage large amounts of funds and offer the potential to keep U.S. industry more competitive with overseas technologies and processes.

What is the Air Force doing to encourage MANTECH and IMIP projects and what more could the Air Force do?

Answer. The Air Force has the most active MANTECH and IMIP programs in DOD. They are important elements of the overall Air Force Industrial Base Program. IMIP evolved from Air Force initiatives that were first called "Technology Modernization" and "Get Price" in the late 1970s. These programs proved so successful in the Air Force that IMIP was institutionalized as a DOD program in 1986. The Air Force combined direct funding for these two programs has averaged $90-125 million per year. In fiscal year 1990, our combined request is for $70.7 million and $24.7 million respectively. The Air Force would like to devote greater resources to both programs. However, the following points indicate why we believe our current level of effort is appropriate:

(1) Current constrained budget environment.

(2) Changes to profit policies have helped better incentivize prime contractors.

(3) The Air Force is institutionalizing IMIP as a consideration that all our programs evalute. Acquisition managers are encouraged by regulation to look for industrial-enhancing opportunities. Where there are technical benefits or opportunities to more aggressively work cost-reducing modernization activity, program/item managers negotiate with their contractors to fund IMIP as part of their production contracts. This is how the F-16, B-1, C-17, AMRAAM and B-2 have approached IMIP.

Question. Cite two or three of the more successful examples of MANTECH and IMIP and elaborate for the record.

Answer. MANTECH Example #1: Automated Inspection of Engine Components Project targeted improvements in manufacturing critical and expensive to produce aircraft engine components. Using fracture mechanics, the MANTECH program worked with industry and the Air Force Logistics Command to develop new nondestructive inspection techniques that have changed the way spare parts requirements are determined. The extended use of components, that can safely go longer without overhaul, is now possible for F100, F101, and F110 engines. The results are increased engine availability, fewer spares needed, and reduced use of critical materials that equate to billion dollar cost-avoidances.

MANTECH Example #2: Computed Tomography—Here is an example where MANTECH personnel worked with the aerospace and medical industries to prove computed tomography (CAT scan technology) was also appropriate for the nondestructive testing of rocket motors and propellants used in space, strategic and tactical systems. This new capability is more effective than the prior state-of-the-art film radiography technology in preventing premature rocket explosions. The projected cost avoidances from this effort will result from a 3:1 reduction in inspection time. In addition, this project will reduce the risk of future rocket motor failures.

IMIP Example #1: Wire Harness Manufacturing Automation at General Dynamics, Fort Worth—This project established improved manufacturing methods for making wire harnesses for F-16s. The project will save 225 manhours ($9000) on each future F-16 wire harness shipset built. The Air Force put up $1.56 million which was matched by $3.69 million of General Dynamics' own funds to complete the project which can save the Air Force about $12.3 million between now and 1997. This technology, as all MANTECH or IMIP projects, is disseminated to domestic industries.

IMIP Example #2: Propulsion IMIP, Precision Castparts Corporation. This single project is part of a larger IMIP effort attacking overall manufacturing cost on aircraft and missile engine parts. The purpose of this project was to improve yields and reduce the cost involved in producing complex cast titanium compressor components. The Air Force put up $2.0 million that was matched by the contractor. The resulting 45 percent reduced forging/machining time is expected to save at least $12.1 million on the cruise missile systems that will first use the improved manufacturing methods. This technology concept had previously been developed as a MANTECH project at a prime contractor location. In this case, IMIP was used to encourage subcontractor technology implementation.

Question. For the record, cite statistics indicating funds invested in MANTECH/IMIP programs and the resultant savings both to the government and industry.

Answer. MANTECH is a level-of-effort initiative that has been funded by the Air Force since the late 1940's. Its purpose is generic manufacturing technology, process, and equipment research and development. Projects are not initiated primarly for cost savings. The real value is that the MANTECH prevents each new program from having to reinvent the wheel by solving generic manufacturing challenges. The MANTECH program is typically involved in about 70 manufacturing developments competed to industry/universities each year. Air Force funding for MANTECH ranges from between $60 and $97 million each year. While it is not necessary to track every industry's use of a MANTECH development, the Air Force did a one-time review of 75 projects. We found over 50 percent clearly were in use somewhere on a DOD production line. While the Air Force had invested about $60 million in these developments, often matched by contractors, it is estimated that the 75 projects will result in $593 million in cost avoidances to DOD systems. More importantly, these projects have been in the forefront of advancing manufacturing technology in numerous areas, such as computer-aided manufacting, thermoplastic forming, advanced propulsion material exploration, and IR sensor assembly producibility.

IMIP, on the other hand, is more specific program and cost-reduction oriented. It is, nevertheless, still a level-of-effort activity within the Air Force. IMIP has been direct-funded at levels ranging from $20–80 million per year. The preferred approach for IMIP is to have programs fund appropriate modernization activities as part of their normal production contract negotiations. The Air Force has invested $533 in IMIPs with over 200 prime and subtier contractors. Industry has matched our investments with over $1.3 billion to complete their share of negotiated IMIP activities. DOD expects to reduce outyear direct manufacturing costs by up to $4.1 billion as a result of these efforts. $635 million has already been negotiated in contracts. Additional savings, accounted for in cost/benefit negotiations with the contractors, are anticipated to accrue to the contractors' commercial side of the business that total about $500.0 million. More importantly, IMIP efforts have resulted in over 200 new manufacturing projects that have been disseminated to all domestic industry.

ACTIVE FORCE STRUCTURE

Question. In the 1989 Annual Report to the Senate and House Committees on the Budget—Part II, Reducing the Deficit: Spending and Revenue Options, the Congressional Budget Office presented the following options to limit spending for national defense:

Please briefly state the feasibility of each option.

Reduce the tactical air force by three wings. This option reduces the tactical force to 32 tactical wings by 1990.

Answer. A reduction of 3 additional tactical fighter wing equivalents, (9 squadrons) would have drastic impact on current war plans. Without these 3 wing equivalents, the Air Force would be unable to fulfill force requirements directed by the current Defense Guidance (DG) and the Joint Strategic Capabilities Plan (JSCP). In any case, inactivating this amount of force structure in such a short time period would cause severer personnel turbulence and hardship. Therefore, the Air Force does not consider this proposal to be feasible.

Question. Reduce the number of active-duty personnel because of the INF Treaty. Air Force's share is estimated at 19,000.

Answer. The Committee's estimate of 19,000 Air Force personnel associated with the Ground Launced Cruise Missile (GLCM) is in error. Instead, the actual number is about half that amount 9,684 spaces (8,590 military and 1,094 civilian). Of that total, 9,218 (8,249 military and 969 civilian) were stationed in NATO Europe, with the remaining 466 assigned to training operations within the United States. As a result of the INF Treaty, the Air Force has programmed the removal of all GLCM endstrength from Europe by the end of FY 1991, including base operating support, infrastructure, and operations and maintenance.

The removal of the military end strength (8,249) provides the necessary headroom to accommodate other high priority Air Force missions in Europe while remaining within the Congressional imposed European Troop Strength ceiling. These adjustments involve air base ground defense/operability, force structure changes, improvements to medical war readiness, relocation of the 401st Tactical Fighter Wing, and improvements in unit undermanning.

It is important to note that GLCM manpower spaces have already been programmed for elimination; therefore, the manpower requirements needed to accommodate these increased priority missions have been achieved through offsets from other programs across the Air Force.

Question. Reduce enlisted strength. Option calls for a total DOD reduction of 35,000 enlisted personnel by 1994. It is assumed that your estimated share would be 10,000. Please briefly state the feasibility of each option. Are you considering end strength cuts in your amended fiscal year 1990 budget?

Answer. Manpower is a resource that supports various Air Force programs and is not a program in itself. Manpower reductions cannot be taken arbitrarily—they must be tied to program cuts. A manpower reduction of 10,000 enlisted personnel without a corresponding adjustment in some Air Force programs translates into undermanning at the unit level. The fiscal year 1988 reduction of 28,000 Air Force enlisted end strength produced unit undermanning of 11,000, with reduced programs able to absorb only 17,000 of the cut. Any further arbitrary manpower reductions will degrade mission capability. In its report, the Congressional Budget Office has proposed a reduction of 35,000 enlisted personnel as an offset for assumed productivity increases from a more senior enlisted force. However, as stated in that same report there are some risks and serious shortcomings to proposing arbitrary generalized tradeoffs between added experience and strength at the aggregate. The Air Force revalidates manpower requirements on a recurring basis, and at the workcenter and specialty level of detail. Added productivity caused by increased experience is accounted for and reflected in our manpower statement of need. Arbitrary reductions in strength, without commensurate cuts in force structure, are inefficient and degrade mission capability, with shortages occurring in imprecise and unbalanced ways across the force. We are not contemplating any nonprogrammatic end strength adjustments in the amended fiscal year 1990 budget.

RESERVE/GUARD FORCE STRUCTURE

Question. In fiscal year 1989, the Air Force proposed to reduce several aircraft from the Reserve/Guard inventory. These were:

4 C-130B at Peterson AFB, Colo.;
1 H-3 at Homestead AFB, Fla.;
1 HC-130 Portland IAP, Ore.;
1 AC-130 at Duke Field, Fla.;
4 C-130 at Nashville, Tenn.;
1 HC-130 at Suffolk Co. Airport, NY.; and
1 H-3 from Moffett Field, Calif.

Congress directed that these reductions not be made and restored the funding associated with personnel, flying hours, and depot maintenance. Why are these force structure reductions again proposed in the fiscal year 1990 budget?

Answer. The Air Force, due to a constrained budget, was forced to reduce force structure. These reductions were made to ensure the most capable and modern force possible was maintained. Reductions were concentrated in the active force, but some were shared with the Air Force Reserve and Air National Guard. Without these drawdowns in the reserve components, the active force capability would be further reduced, and the active force would have to provide an unacceptably high percentage of staff overhead to support the total force.

Question. In converting the older F-4s and A-10s from the Reserve/Guard inventory to F-15s and F-16s, the Air Force has proposed to downsize the unit from 24 aircraft to 18 aircraft. Why is this necessary? Is it your intention to later restore the unit size as aircraft and funds are available? What impact do you believe this turbulence will have on the personnel in these units, and on the units themselves?

Answer. As part of the overall reduction of three tactical fighter wing equivalents, the Air Force decreased the equipage in 8 selected Guard/Reserve tactical fighter units (one A-10 unit, one A-7 unit and six F-4 units). There are no reductions planned during F-4 to F-15 conversions. Drawdowns were proposed at locations which would cause the least impact on state and local economies and were all done in conjunction with force modernization. In spite of unit downsizing, modernization to newer aircraft will produce a marked increase in these units' combat capability. Additionally, the Air Force considers force mix and Continental US/Overseas ratio an integral part of the total concept which evolved into DOD policy in 1973. The Air Force has led the way in integrating its reserve components into the total force and has brought the Guard and Reserve to a high state of readiness. Likewise, in order to meet the current level of commitment to our strategy of forward deployed forces while maintaining the proper force mix and overseas balance, the Air Force needs to spread its reductions across the total force. The drawdowns from 24 Primary Authorized Aircraft (PAA) to 18 Primary Authorized Aircraft (PAA) in selected units are part of this reduction.

A consequence of this action is that Guard/Reserve units are converted at a higher rate than possible at the higher Primary Authorized Aircraft (PAA) numbers.

As to restoration, if future Air Force budgets allow a build in force structure, Guard and Reserve units will be increased to 24 unit equipped aircraft.

With regards to the impact, any drawdown in force structure causes turbulence. The amount of turbulence depends on notification lead time. At times, announcements made during the normal public announcement cycle do not provide enough time for normal attrition (retirements, etc.) to take place. This causes some forced retirements and layoffs. Since most Guard and Reserve personnel are "home grown", this causes turbulence in the personnel system as well as the unit and community.

Question. Are there any Reserve/Guard units that are being downsized without a resultant conversion? If so, which ones and why?

Answer. No. All unit reductions are concurrent with modernization.

B-1B ELECTRONIC WARFARE SYSTEM

Question. The Air Force spent over $3 billion on the B-1B's troubled electronic warfare system, called "ALQ-161". You now plan to spend about $.5 billion of existing funds to "fix" the B-1B's baseline ALQ-161 electronic warfare system, and another $.5 billion with a new contractor to add a separate "radar warning receiver" that was not originally planned to the B-1B fleet. Please explain the Air Force's strategy to fix the B-1B electronic warfare problems.

Answer. We have adopted a two-phased approach to solving the B-1B ECM problem: (1) a prudent risk "core" program with the current contractor that improves the reliability, consistency, and supportability of key ALQ-161 jamming techniques, and (2) a radar warning receiver capability that compliments the performance of the "core" ALQ-161 system by providing improved aircrew situational awareness.

Question. After this additional $1.0 billion investment, what will be the B-1B's electronic warfare capability? What limitations will still exist?

Answer. ———.

Question. How will the performance of the "final" system compare to what the original system was supposed to do? Of the eight (8) frequency bands that enemy radars operate in, how many will the "final" ALQ-161A be able to jam?

Answer. The performance of the "core" ALQ-161A system will be less than that required of the original system. ———.

Question. Of the "Top 50" Soviet threats, how many could be defeated by the "final" ALQ-161A? How many threats will the system handle at one time?

Answer. ———. It is only one of several elements in the penetration equation. High speed, low altitude, low RCS, tactical route planning, and defense suppression are equally, if not more, important than ECM in determining the overall penetration capabilities of the B-1B. The threats ——— are not equal in significance or capability. ———.

Question. Let's focus on the "radar warning receiver" proposal. What does the radar warning receiver do? Was the original ALQ-161A system supposed to provide this capability? If the ALQ-161A contractor is now contractually relieved of this requirement, do we get a refund?

Answer. The radar warning receiver (RWR) provides situational awareness for B-1B crews by detecting threat signals and displaying the threat type, mode, and location relative to the aircraft position. This capability was included in the original B-1B performance specification. Negotiations are currently ongoing between the government and Eaton. If Eaton is contractually relieved of this responsibility, consideration (i.e., something of value) is due to the government.

Question. You now plan to use the F-16's "ALR-56M" radar warning receiver on the B-1B. How many production configuration ALR-56M systems are deployed in the F-16 fleet today? How will the ALQ-161 and the ALR-56M be integrated?

Answer. There are no production configuration ALR-56Ms deployed with the F-16 fleet today. The first F-16 with the ALR-56M will be produced in October 1991. The ALQ-161A and the ALR-56M will not be integrated since the ALR-56M is viewed as a stand-alone receiver. The only integration efforts will be into the B-1B controls and displays at the defensive operator station. First deliveries for B-1B use are expected in fiscal year 1993.

Question. Suppose we just stop all new work on the B-1B's electronic warfare system. What would be the operational impact? How much money would we save? Provide for the record your estimate of termination costs and savings if ALQ-161 work were halted as of June 1.

Answer. ———. The current configuration of the ALQ-161A system requires improvements to provide organic maintenance support ———. Further, the defensive avionics flight line maintenance diagnostic tool Central Integrated Test System (CITS) requires maturation. Finally, the first 17 systems are in a nonstandard configuration that burdens the logistical system. Termination costs are estimated at $150 million. While net savings of approximately $600 million are possible (if all work was stopped on June 1, 1989) ———.

Question. Let's discuss your acquisition strategy if Congress were to approve your proposal. How much RDT&E is involved? How much concurrency exists in your program?

Answer. The Air Force plans to install a stand-alone radar warning receiver (RWR) to augment the "core" ALQ-161 program. The RWR will address the situational awareness requirement not achievable within the ALQ-161 "core" program. The FY 1990 budget submission requests a total of $116 million in FY 1990/1991 for the initial integration of the Air Force common RWR (ALR-56M) into the B-1B. The total RWR program estimate is $489 million. While Congress deliberates on the FY 1990/1991 budget request, the Air Force is conducting risk reduction studies to optimize design integration approaches. There is no concurrency in the "core" effort with the ALQ-161 system.

Question. How much fight testing of the "final" ALQ-161 along with the integrated ALR-56M radar warning receiver would be accomplished prior to a production decision to purchase additional hardware? What will we do if the flight tests were unsuccessful, as was the case in the ALQ-161A?

Answer. Six months of flight test (10 sorties) is currently scheduled for the ALR-56M on the B-1B. This testing will span the 4th quarter of FY 1991 through the 1st quarter of FY 1992. After the completion of flight testing, a production decision will take place.

Question. Discuss the alternative electronic warfare systems that could be adapted to the B-1B (e.g., B-52's ALQ-172, F-111's ALQ-189, etc). How many of these alternatives have been actually flight tested on the B-1B to provide real data for comparison to your proposed solution?

Answer. From an initial list of twelve options, the six most promising candidates were selected for detailed Air Force evaluation. This group included two options with the current ALQ-161A contractor, two options involved with RWR, one option with the ALQ-172, and an option with advanced expendables. After a rigorous technical and business review, the Air Force elected to pursue the current plan which includes a "core" ALQ-161A and a RWR. None of the alternatives have been flight tested on the B-1B.

Question. Provide for the record how such a "fly off" might cost, how long would it take, and how such an approach compares to your proposal?

Answer. A full fly-off between alternative systems will require the full integration of each system into the aircraft and/or ALQ-161A. A preliminary cost is estimated at $100 million with 2 to 3 years in development. In assessing available options to fix the ECM problem, the Air Force picked a prudent best risk technical and business approach in selecting the stand-alone RWR option in concert with the "core" ALQ-161A.

Question. How much "expired funds" will be used to finance this initiative, and of this how much was originally appropriated for the B-1B?

Answer. The RWR requires $489 million in new budget authority. Including spares, the "core" procurement requirement is $629 million. A total of $527 million in expired and lapsed funds will be used to provide the "core" and initial "core" spares. To date, it is estimated that over $500 million in B-1B appropriations have been placed in expired/lapse status with the resultant loss of B-1B identity.

Question. Let's discuss the existing, deployed ALQ-161 system. Does it work? How much more RDT&E work remains?

Answer. The key operational technique works. However, the currently fielded ALQ-161A system provides only a ——.

The current Eaton-AIL proposal for completing the "core" program is $615 million. The RDT&E for the "core" program is $96 million plus about $35 million in other government costs. The development program will last until early 1991.

Question. Does each of the deployed B-1B's have an exactly identical ALQ-161 electronic warfare system?

Answer. No. Aircraft 2 through 18 have an early hardware configuration. These aircraft will be modified under the "core" program beginning in early 1990 and ending in May 1991.

Question. Do your maintenance personnel have sufficient technical data and configuration control to effectively maintain the deployed ALQ-161 system?

Answer. Some technical data exist in sufficient quantities to effectively maintain portions of the ALQ-161A system. However, we do not have full organizational, intermediate, or depot ("O", "I", and "D") level organic ALQ-161A maintenance capability at this time. Central Integrated Test System (CITS) maturation is required to achieve full "O" level capability, but it will not be available until the "core" program is complete. In addition, "I" and "D" level system maintenance is still dependent on interim contractor support (ICS).

Question. How much of the ALQ-161 organizational, intermediate, and depot level maintenance is done in-house by the Air Force?

Answer. At the organizational level, all maintenance is performed by Air Force personnel using interim support equipment and technical data to work around the immature CITS diagnostic capability. We currently have the ability to test and repair one line replaceable unit (LRU) at the intermediate level and approximately 5 percent of the ALQ-161 at the depot level.

Question. Provide for the record in each fiscal year 1987 to 1995 the currently estimated "interim contractor support" that is planned to be provided to the ALQ-161 contractor. When will the ALQ-161 ICS end? What are your plans for competing it?

Answer. The ALQ-161 ICS costs for the B-1B from FY 1985 through FY 1989 total $76 million. The projected ICS cost for FY 1990 through FY 1992 are $25 million, $22.75 million, and $27.25 million, respectively. ICS will end when the Air Force has an organic repair capability for the ALQ-161.

Question. Let's discuss Air Force management of this program. Are you satisfied with the Air Force's management of this program? What went wrong? How many Air Force people have been reprimanded or disciplined for the management failure in this program? What have you learned from this terrible experience? What will the Air Force do differently to manage future electronic warfare systems? What actions do you plan to institutionalize "lessons learned" from the management failures in the B-1B?

Answer. On balance, the Air Force is satisfied with the overall management performance on B-1B development and production efforts. We achieved numerous program successes that skeptics thought impossible. Key among those was achieving initial operational capability (IOC) and delivering 100 aircraft on schedule thus filling the near-term erosion in strategic warfighting capabilities. Conversely, the defense avionics performance has been disappointing. The early program assessments overestimated the development maturity of the defensive system while underestimating the technical challenge and schedule implications. Consequently, several changes have been institutionalized in the acquisition management process focusing management attention on the system performance indicators early in the acquisition process and throughout the system's development and deployment.

Question. Let's discuss future enhancements for the B-1B. An August 1988 CBO report identifies $7.9 billion of possible enhancements to the B-1B, such as: ——— countermeasures ($1.4 billion), high resolution infrared targeting sensor ($1.0 billion), forward warning system ($0.7 billion), SRAM II ($0.6 billion), on-board mission planning system ($0.6 billion), improved synthetic aperture radar ($0.6 billion), reliability and maintainability enhancements ($0.6 billion), and numerous others. What exactly is the Air Force plan for such capabilities? Provide a status of each initiative listed in the CBO report, your current estimate of its cost and your current thinking on the need for each.

Answer. The Air Force is not planning $8 billion in enhancements for the B-1B. During a fiscally unconstrained Air Force planning exercise, a list of possible B-1B enhancements was created. However, most of these enhanced capabilities did not have supporting operational requirements and were therefore discarded. In the FYDP, the Air Force has programmed only $1.4 billion for investment in the B-1B. This reflects the prudent first step in the evolution of the baseline B-1B to sustain its warfighting capabilities into the next century.

Question. Provide the costs in each fiscal year 1989 to 1995 of all B-1B costs in the current budget to Congress and the accompanying five-year plan by specific project. Indicate the ultimate total cost of each project.

Answer. The Air Force has programmed $1.4 billion in the FYDP for investment in the B-1B program. These efforts represent a mix of baseline tasks accountable against the $20.5 billion (e.g. RWR-$489 million; deferred support equipment—$250 million), reliability and maintainability modifications, and program enhancements. This $1.4 billion contrasts vividly with the $8.0 billion quoted by the GAO and CBO.

The following is a list of all currently planned and programmed development and procurement efforts in the FYDP (fiscal years 1990–1994) associated with the B-1B requiring new budget authority:

[In billions of dollars]

Effort	Fiscal Year 1990–91 budget request	Fiscal Year 1990–94 FYDP
Class V:		
SRAM II	69.0	[Deleted]
NAVSTAR GPS	0	[Deleted]
Microwave landing system	0	[Deleted]
Class IV MODS	5.8	[Deleted]
Class III MODS	107.2	[Deleted]
Deferred baseline support equipment	20.0	[Deleted]
Radar warning receiver	116.0	[Deleted]
Advanced expendables	28.0	[Deleted]
Total B–1B cost investment	346.0	[Deleted]

B–2 PROGRAM

Question. Last December, the Air Force publicly announced that the cost of 132 B–2 "stealth" bombers is currently estimated at $68.1 billion, which computes to a $516 million per unit cost.

General Welch, is the B–2 program affordable?

Answer. Yes. It will have the capability to carry out its primary mission: to penetrate sophisticated air defenses and attack those targets valued by the enemy. It will embody all those characteristics that have made the manned bomber the most flexible element of the Triad, such as recall after launch, damage assessment, and the inherent value of man-in-the-loop, real-time decision making. While the overall cost of this program is high, the return for the investment is far, far higher.

Question. How firm is the $68.1 billion estimate, and what assumptions are behind it?

Answer. We are confident that $68.1 billion is an accurate estimate for the acquisition profile outlined in President Reagan's FY 1990 budget. Changes to this profile, however, will result in changes to the program cost.

Question. Without getting into special access details, tell us about the B–2 mission. What targets will it attack, and why could you not use a much cheaper ICBM or SLBM to hit them? Address Soviet mobile missiles (SS–24/SS–25).

Answer. The B–2 will be the most versatile and flexible strategic weapon system. It can cover the entire range of Soviet targets that are not time sensitive. It can deliver the most accurate weapons with the largest yield. The B–2 also has a look-and-shoot capability, which means it can cover a larger number of targets more efficiently. Additionally, the B–2 will have conventional capability unlike other legs of the triad. In terms of cost per target covered, the cost for the B–2 is about the same as the B–1, cheaper than the Peacekeeper and far cheaper than the Small ICBM. It is not cheaper to cover targets suitable for B–2 with ballistic missiles.

Question. Explain your multiyear procurement strategy.

Answer. Based upon the FY 1990 President's Budget, we intend to initiate procurement of the F118 engine for the years ——— and of the B–2 airframe for the years ———.

Question. What is the "upfront" investment for multiyear?

Answer. For the F118 engine, it is ———. For the B-2 airframe, it is ———. These figures include some funding that would also be required for an annual buy program.

Question. How much would be saved?

Answer. ———.

Question. How much additional funding is involved in FY 1990 and FY 1991 to support your multiyear strategy?

Answer. The total additional funding actually required for both the engine and airframe multiyear is ———.

Question. Does B-2 meet the congressional criteria for multiyear: maturity of design, program stability, savings of 10 percent of program cost, etc.?

Answer. Engine: The F118 engine is a technically mature product by virtue of the successful completion of all full scale development and qualification testing requirements. We expect that the need for the engine will remain unchanged during the contract period in terms of production rate, fiscal year phasing, and total quantities. While the total savings are projected for less than 10 percent, we believe that the savings of ——— make it beneficial to the government. Airframe: ———. We expect that the need for the B-2 will remain unchanged during the contract period in terms of production rate, fiscal year phasing, and total quantities. While the total savings are projected for less than 10 percent, we believe that the savings of ——— makes it beneficial to the government.

Question. Since program inception, has the Air Force ever procured the quantity of B-2's that were appropriated? Why?

Answer. ———.

Question. What is your cost experience in the B-2 development contract? Are you meeting your original cost goals?

Answer. ———.

Question. Do you plan to submit a fiscal year 1989 reprogramming request to Congress for the B-2? If so, why?

Answer. Yes, the reprogramming request seeks to increase funding for FY 1989 development activities, provide funding for common support equipment, and increase funding for initial spares.

Question. Explain your decision to declassify aspects of the B-2.

Answer. As we approach the flight test and deployment phases of the B-2 program, the cost to fully protect the entire B-2 system and all its associated capabilities from observation becomes prohibitive in terms of dollars as well as in risk and time.

ADVANCED CRUISE MISSILE FLIGHT TEST

Question. The Advanced Cruise Missile is in trouble, and as a result Congress denied the procurement funding request last year.

Congress requires six successful flight tests prior to a production decision. How many have been successfully accomplished so far?

Answer. Three.

Question. When will the six tests be done?

Answer. The current schedule will complete the sixth test by June 1989.

Question. How many ACMs do you plan to buy?

Answer. ———.

Question. How has this changed from last year's budget?

Answer. It has not. We have changed the missile procurement profile somewhat, but the overall program quantity has not changed.

Question. The Committee understands that the Air Force proposed to reduce the ACM quantity by about two-thirds during internal Pentagon budget deliberations last spring, but OSD directed that the original, higher quantity be requested from Congress. Please explain the Air Force thinking at the time.

Answer. The internal Pentagon budget exercise had to do with START negotiations and budget constraints. The Air Force proposed a two-thirds reduction in the ACM program. This was one of several options examined to meet our budgetary requirements. In the end, we agreed with OSD. The point is that we were not overruled. We decided that they were right.

Question. What is your real requirement?

Answer. As identified in the SAC Statement of Need, we require —— ACMs.

Question. What is your minimum requirement?

Answer. The stated requirement is also the minimum requirement.

Question. Explain your current "restructured" (again) acquisition strategy.

Answer. The current acquisition strategy preserves the option to go dual source. It will continue the low rate production of ——— during fiscal year 1990 and ——— in fiscal year 1991. Those would be split evenly between the prime contractor (General Dynamics Convair Division) and the second source (McDonnell Douglas Missile Systems Company). In fiscal year 1992 full rate production of per year would commence with an annual competition for the remaining ——— total programmed buy.

Question. In our classified report, we directed that the concurrency in this program be eliminated. Explain how your current acquisition strategy meets our requirement.

Answer. The absence of new procurement in fiscal year 1989 effectively removed concurrency. The Advanced Cruise Missile (ACM) developmental test program will be complete during CY 1989, and we are asking to resume procurement in fiscal year 1990.

Question. How much procurement is requested for fiscal year 1990?

Answer. Our fiscal year 1990 request includes ——— missiles in fiscal year 1990 plus ——— advance procurement for the ——— fiscal year 1991 missiles requested.

Question. When will the last ACM flight test be completed?

Answer. The last full-scale development flight test is ———. Flight tests to qualify the second source and B-1 qualification flights will follow.

Question. Given the B-1's problems, what are your plans for using ACM on the B-1? What is our position for the B-1 as a cruise missile carrier under the START negotiations?

Answer. ———.

EARTH PENETRATING WARHEAD

Question. The Defense Department last summer decided to pursue the nuclear earth penetrating warhead program. To date, Congress has not been asked to appropriate funds to DOD for this initiative. What is an earth penetrating warhead?

Answer. In the context of a nuclear weapon system, an earth penetrating warhead (EPW) is a warhead that is designed to penetrate into soil or rock, survive the penetration, and detonate below the earth's surface. When a nuclear burst explodes underground, the energy directed into the ground is much greater than if the same size (yield) weapon was detonated at the surface. This enhanced downward radiating ground shock (energy) from a nuclear EPW is the kill mechanism that breaks up or crushes deeply buried tunnel complexes.

Question. What targets would it be used to attack?

Answer. The earth penetrating warhead would be used to hold deeply buried Soviet leadership facilities at risk. ———.

Question. How are these targets held at risk today?

Answer. ———.

Question. What weapons would be used to deliver such a warhead?

Answer. Actually, any nuclear-capable weapon system could carry an EPW. A gravity or rocket-assisted bomb dropped from a bomber, an ICBM reentry vehicle, or a cruise missile could be used to deliver the EPW. Each has advantages and disadvantages. However, a DOD and Department of Energy study ———. We are also looking at the long-term feasibility of building a very robust EPW which could be delivered by ICBM, SLBM, or new cruise missiles.

Question. Compare the advantages of using ICBMs, aircraft, or cruise missiles. Which are you pursuing and why? Explain the requirements for and advantages of ballistic solutions compared to maneuvering solutions.

Answer. The ideal earth penetrating weapon (EPW) would be carried by a system that is ———. The weapon would be very accurate and capable of penetrating Soviet defenses. It would survive penetration into hard rock or even a concrete building, while achieving the maximum possible burial. We need this capability now ——— Mobile ICBMs or SLBMs come close to the ideal solution but an ICBM ballistic reentry vehicle (RV) must be slowed significantly before the penetrating warhead hits the earth or it will break up. To control the speed, and thus the impact of the EPW, the RV must slow by maneuvering or braking. Current ballistic RVs cannot perform this action, so new technology will be required. Maneuvering reentry vehicle (MaRV) technology has the ability to fly to any impact condition. MaRVs can easily achieve the optimum impact conditions required by an EPW by insuring burial of at least ——— with a precise impact velocity while maintaining a narrow flight path angle that will not destroy the penetrating warhead. However, MaRVs are costly, more complex than ballistic RVs, and require development. In the future, the improved accuracy, flexibility, and defense penetration capabilities of MaRVs may outweigh the increased cost and complexity. Additionally, EPW designs are not yet available to field, and when available, they will likely weigh significantly more than an equivalent size and yield ballistic RV warhead. This will create a range and/or volume constraint on any deployed ICBM or SLBM. ———. A gravity-delivered EPW (rocket assisted to ensure sufficient burial) is possible but requires ———. Cruise missiles are an attractive option because they combine survivability, standoff range, and controllable impact speeds with proper flight path angle, sufficient payload volume, accuracy, and flexibility. ———.

Question: How much is requested in FY 1990 for this initiative and what is the total cost of this initiative projected to be? Provide for the record by DOD appropriation, fiscal year, and line item all funds associated with development and production of earth penetrating warheads and platform integration in each fiscal year 1988 to 1995.

Answer. ———.

Question. What is the Navy's participation in the program?

Answer. The Navy participated in the earlier DOD/DOE search for a near-term EPW solution and is participating in the joint effort with the Air Force and the Department of Energy to develop a long-term follow-on weapon.

TANKER TRAINER TRANSPORT STUDY

Question. The conferees on the 1989 Appropriations Act directed the General Accounting Office to make an assessment of the Air Force's Trainer Aircraft Master Plan. The GAO's final report should be released shortly. The draft report claims that the Air Force has understated the utilization rates of existing trainers and overstated the current requirement for a TTTS aircraft. Specifically, the GAO suggests that Congress may wish to defer TTTS funding for up to five years, at a savings of nearly $1 billion.

Given the current budget climate, why isn't this a very attractive recommendation?

Answer. Although delaying the USAF trainer fleet replacement by five years as proposed by the GAO would reduce near term budget requirements by about $954 million, the long-term impact would be unacceptable. The recommended delay assumes that Air Force pilot production will remain at or below fiscal year 1988 levels for the next five years. Such an assumption is not valid, given the projected shortfalls in rated resources and the need for increased production. Additionally, attempting to achieve T-38 utilization rates which were demonstrated 15 to 20 years ago is questionable and would increase the risk of additional aircraft attrition. Airframe age and modifications (Pacer Classic) have also increased the required Backup Aircraft Authorization (BAA) to 10 percent. Introducing the TTTS into the Air Force fleet now will reduce the training load on the T-38, provide a 10 percent increase in pilot production capability (by 1995), and produce a more highly trained graduate. Delaying a replacement for the T-37 is not acceptable. The anticipated reduction in flyable life of the T-37 associated with revised Service Life Extension Program (SLEP), along with its declining effectiveness as a trainer, makes its replacement a particularly important priority within DOD—one that cannot be slipped beyond the current plan.

The alternative of delaying five years then starting two major acquisition programs at the same time will require almost twice as much funding each year (approximately $650 million). The resulting fluctuation in funding and increased risk of integrating two new aircraft fleets at the same time poses a significant risk to the ability to continue producing Air Force pilots in sufficient numbers to meet anticipated requirements. The 1988 USAF Trainer Master Plan strategy was designed as a long-range plan to reduce unnecessary funding fluctuations and reduce the operational risk associated with simultaneous acquisitions. In addition to the funding problem, any delay in the start of the trainer replacement program may reduce the opportunities for joint (Navy and Air Force) procurement of trainer aircraft.

AGM-130 MISSILE

Question. The budget for 1989 and the budget for 1990 contained no procurement funding for the AGM-130 missile. During last year's hearing, Mr. Aldridge stated "we cancelled the stand-off air-to-ground missiles. The AGM-130 program was in some technical difficulty, but because of the budget environment, we terminated the procurement of that." Recently the program has experienced several test successes.

Based on the recent experience, has the Air Force had a change of position regarding AGM-130 procurement? Specifically, how likely is it the Air Force will submit a reprogramming action in 1989 to initiate procurement?

Answer. The Air Force deleted all fiscal year 1989 AGM-130 production funds due to development problems. At that time, however, the Air Force still supported testing of the previously purchased weapons (18 AGM-130/TV). If the weapon worked well in the scheduled tests, it would compete for production funds in future Air Force budgets. Subsequently, the DOD Standoff Weapons Master Plan, submitted to Congress in June 1988 did not recommend AGM-130 production. At the time of the fiscal year 1990 budget submission, AGM-130 testing had not progressed sufficiently to determine if it had "worked well" and the June 1988 DOD Standoff Weapons Master Plan had not been updated. Both the Master Plan and AGM-130 testing are currently being reviewed to determine if pursuing AGM-130 production funding is now appropriate.

If appropriate, we will seek production funding at the earliest available opportunity. In any event, the earliest we would start production would be in fiscal year 1990.

FSX TECHNOLOGY

Question. What is the Air Force view concerning the proposed agreement to co-develop the FS-X aircraft with Japan, giving them F-16 technology?

Do you think we should proceed with the FS-X deal?

Answer. Yes. the FS-X fills a legitimate Japanese military need. This is particularly true when it is viewed in potential combination with the E-3A AWACS, more E-2Cs, and more AEGIS cruisers. The Defense Department believes that a disruption of the FS-X program would cast the US in the role of an unreliable defense supplier to a major ally, particularly since we pushed the Japanese so hard before they would agree to base FS-X development on a US airframe.

From the beginning it was evident that the agreement must be negotiated in such a way as to satisfy a diverse spectrum of US interests. Issues associated with the US-Japan trade imbalance lay just beneath the surface of the attempt to reach a solution mutually acceptable to US and Japanese security interests. The Defense Department established a cross-functional team to address issues of US workshare, transfer technology to and from Japan, and oversight to insure the agreement would be carried out. The Defense Department established a close relationship with General Dynamics (GD) to insure that its corporate interests were well understood and protected. Both the Defense Department and GD, working together, did their best to forecast the long-range effects of FS-X on other members of the aerospace community, to include suppliers of components and subcontractors.

The Defense Department met its goals when negotiating the FS-X agreement. The quantity (i.e., 40 percent of the Japanese Defense Agency's (JDA) development budget for FS-X) and quality (e.g., guaranteed wingbox technology transfer) workshare goals are good examples. We also expect to obtain the free and prompt flowback of technical improvements derived from F-16 technology and open access to purchase related Japanese developments.

Question. Do the envisioned benefits we receive in the way of composite wing and active phased array radar technology adequately balance what the Japanese will learn from us?

Answer. The FS-X agreement represents the outcome of several years of consultations and negotiations between Japan and the US to find a new support fighter to replace the Japanese designed F-1 and meet the projected mid-to-late-1990s threat. Given that an off-the-shelf purchase of a US fighter could not fulfill the Japanese requirement, and that the Japanese Government's original intention was to design and build an indigenous fighter, the FS-X co-development project was considered the best available alternative by both sides. It is, in many respects, like one of NATO's Nunn-Quayle projects—but one not requiring the additional appropriation of US funding.

In the area of cocured composites, US industry has an adequate data base for the cocuring of composite skins to honeycomb structure. However, there are many uncertainties concerning the cocurring of major composite structural components, such as spars and ribs to composite skins and bulkheads in production aircraft. Several US aircraft manufacturers have the capability to cocure minor structural details, such as stiffeners, to composite skins, but none currently possess the capability of cocuring major structural composite components to composite skins. Codevelopment offers an excellent opportunity to expand our industrial base in cocurred composite structures (at no expense or risk to the US) and gain direct access to a major development effort that for the first time seeks to apply this emerging technology to the complete primary structure of a fighter aircraft wing capable of 9 G performance.

A second area of interest is the economic production of transmitter/receiver (T/R) modules for active phase array radars. This type of radar offers significant improvements in reliability and performance, and is planned for our next-generation fighter aircraft. U.S. industry is currently working to solve the technological challenges associated with this concept, one of which is to find a manufacturing process that produces efficient, high quality, and affordable modules. Japan has become a world leader in the design, and particularly the manufacture, of consumer electronics. The ability to manufacture this type of electronics, as well as rapidly transitioning new designs to production, is a well-developed discipline in Japan. If their financial structure, that promotes capital investment in plant and equipment for continuing modernization, and their broad-based knowledge of manufacturing technology is brought to bear on the T/R module manufacturing problems, significant advancement is likely.

The Japanese will receive an F-16 data package roughly equivalent in technology value to the F-15 data they have had for 10 years. No design methods or techniques will be revealed. No state-of-the-art airframe technology, such as stealth products or processes, or advanced composites materials will be transferred.

The avionics design transferred to Japan as part of FS-X are also of the variety used by the Defense Department for the past 10 years. FS-X avionics systems that are most reliant on state-of-the-art advances involving sensitive techniques (fire control radar, internal EW suite, INS, central computer) will be developed solely by Japanese industry with no US involvement in terms of data, technology or participation. However, Japanese technology and systems developed in this effort will be available to the US.

The most sensitive remaining area of technology transfer is systems integration and software development. To protect America's well established, world-wide technology lead in this area, the US will only provide non-sensitive, F-16 interface control information required to integrate the Japanese systems on the FS-X, and some software source code purged of designers' notes and techniques. This greatly reduces the level of technology transferred to the Japanese.

Question. What restrictions, if any, would you place on the proposed FS-X agreement?

Answer. The Air Force conducted an in-depth review of the technologies involved in the design and manufacture of the F-16. The review identified several areas where restrictions in the transfer of technologies should be applied to protect sensitive US military technologies or a comparative US commercial advantage. These restrictions will be applied document by document in accordance with procedures for managing technology transfer and classified information. The provisions of the Licensed and Technical Agreement (LTAA) recognize this process, and no modification of the existing LTAA is required. Some of these restrictions include:

No Advanced Fighter Technology Integration (AFTI) data, except that related to uncoupled control modes.

Design/analysis techniques and procedures.

Parametric design methods.

Hardening, vulnerability, and survivability analysis methods.

Aerodynamic data other than wind tunnel/performance model results for the Block 40 F-16 (and early 375 sq ft Agile wing data).

Transfer of composite material technology other than that currently used on the F-16.

Improved Performance Engine design and manufacturing data.

During the technology review, the release of F-16 system integration data was given special attention. Our decision was to restrict the release of software source codes for one of the systems that performs functional integration of various critical aircraft systems—the Digital Flight Control System (DFLCS). The DFLCS software is state-of-the-art, uniquely sophisticated, and has direct application to commercial aircraft. As a result, we decided the modification of existing F-16 DFLCS software would be accomplished by General Dynamics (GD) in the US, and provided to Japan only as an end item. Because of the safety-of-flight criticality of this software, a limited number of Japanese engineers will be allowed to observe the modification process so that the Japanese prime contractor can insure the validity and readiness of the software to enter flight test. Upon completion of the FS-X flight test program, and once a production MOU has been negotiated, release of the DFLCS source codes will be reconsidered to allow Japan to maintain and update the developed software. This restriction requires a modification of the existing LTAA.

F-16 MULTIYEAR PROCUREMENT

Question. The 1989 Defense Appropriations Act provided advance procurement funding to support 120 F-16s in 1990. Last month Air Force officials requested authority to obligate advance procurement money to support 150 aircraft in 1990. This Committee deferred action on the request until the additional sources of funds to support the extra aircraft are identified. In the meantime the Bush Administration announced its budget amendment, which would reduce DOD budget authority by $6 billion.

Has the Air Force decided yet on how many F-16s to buy in 1990?

Answer. The Air Force supports the fiscal year 1990 President's Budget which contains 150 F-16s to be procured in fiscal year 1990. However, in light of the Bush Administration's announcement to amend the budget, the total Air Force budget is being reevaluated, including F-16 quantities.

Question. Are potential multiyear savings being eroded by the delay in awarding an advance procurement contract?

Answer. Yes. The Air Force does not know the extent of the potential erosion, because information indicates the contractors are trying to maintain vendors in the absence of an advance procurement contract. However, even if the contractors are attempting to maintain vendors, that maintenance may extend only to critical items for the fiscal year 1990 procurement. Economic ordering quantities for the total multiyear period (fiscal year 1990-1993) may not be protected.

Question. What is the level of the contractor's exposure as he tries to maintain vendors?

Answer. Unknown. However, under normal conditions, the exposure for a minimum level of vendor maintenance is approximately $50 million.

RETIREMENT OF CONVENTIONAL B-52S

Question. The Air Force spent a great amount of money to modify 69 B-52G bombers for the "conventional" mission which entails laying ocean mines and dropping iron bombs, Harpoon antiship missiles or Tacit Rainbow antiradar missiles. During wartime, these aircraft are "chopped" to theater CINCs to support the conventional war. The B-52G conventional bomber force first became fully operational last October. The current budget now proposed deactivating one of the five squadrons (12 aircraft).

Why is it wise to retire one-fifth of the nation's conventional bomber force?

Answer. The Air Force would have preferred to retain these aircraft because their structural life is estimated to be sound into the next century without additional structural modifications. President Reagan's Strategic Modernization Program, constrained by fiscal realities, called for acquisition of the B-1B and B-2, retirement of some older B-52G bombers, and transferring the FB-111s from SAC to TAC. Fourteen Primary Authorized Aircraft (PAA) non-Air Launched Cruise Missile (ALCM) capable B-52Gs (oldest B-52s in the inventory) will retire this year. The savings realized in operations, maintenance, and support will be used to fund higher priority programs.

Question. Were theater CINCs consulted in the decision?

Answer. Yes. The Chairman, Joint Chiefs of Staff (CJCS), queried the theater CINCs in 1986 for their views on the retirement of a non-ALCM B-52 squadron. ———.

Question. How does this action affect the European war plan?

Answer. The B-52Gs scheduled to retire by the end of fiscal year 1989 are assigned to the 320th BMW, Mather AFB, CA. ———. These aircraft will become "dual-tasked" for both nuclear and conventional missions and, as such, will not be as flexible for conventional response as the conventionally dedicated squadron at Mather AFB. While this will result in some loss of flexibility for the Pacific theater, it will not impact the "European War Plan" in any way.

Question. Will any B-1 aircraft replace the conventional B-52Gs? If so, are they equipped to do the mission?

Answer. The role of the B-1B for the near term is to support the primary nuclear mission. It is not now planned as a replacement for the retiring B-52Gs. Nevertheless, the B-1B was designed to deliver a wide array of nuclear and conventional weapons.

Question. For the record, provide details on the costs incurred in modifying B-52Gs for the conventional mission. How much was wasted by modifying B-52Gs for the conventional mission. How much was wasted by modifying 12 aircraft for less than one year of service?

Answer. The costs incurred prior to fiscal year 1990 plus programmed (fiscal year 1990 and beyond) to modify B-52Gs follow:

	Incurred	Programmed	Total
HAVE NAP standoff missile	15.1	6.9	22.0
Integrated conventional stores management system [ICSMS]	95.2	45.7	140.9
Night vision goggles/heads up display	0	23.9	23.9
HARPOON Integration	20.1	0	20.1
TACIT RAINBOW (ICSMS allows launch)	0	0	0
AN/ARC-186 VHF radio	3.9	.5	4.4
VINSON secure voice UHF radio	1.8	1.1	2.9
Total	136.1	78.1	214.2

The 12 aircraft referenced were actually 14 PAA non-ALCM modified B-52Gs retiring this year. These aircraft did not receive any of these conventional modifications except for HARPOON Integration. The HARPOON Integration modification was accomplished on retiring aircraft in 1985 for $4.1 million. This provided a four-year payback on the investment vice one year.

DOD IG REPORT

Question. In February, the DOD Inspector General published a report on Information Resources Management within DOD that pointed out some weaknesses in Air Force ADP management practices.

The Air Force has a centralized computer acquisition center of 100 personnel that saved $161 million in fiscal year 1987. Yet, the DOD IG points out that few Air Force organizations use this capability, preferring to do local procurements which are generally smaller and more expensive. Worse, the Air Force has "no guidance which states when to use AFCAC." DOD IG says: "the failure of HQ Air Force to require subordinate activities to use the central select activity encourages duplicate effort and inefficient personnel utilization . . .". General Welch, what is the Air Force doing to fix this problem?

Answer. The Air Force has just begun its review of the DOD IG Report on Information Resources Management. Consequently, it would be premature to provide any preliminary opinions on the report's findings or recommendations. We expect to complete our analysis by April 17, 1989, and will forward our response to OSD at that time.

Question. The DOD IG points out that two Air Force computer systems (called CAS and AFC2S) each exceed $100 million—when all costs have been properly measured—yet have not undergone the required oversight reviews by OSD. Section 8070 of Public Law 100-463 (Appropriations Act for Fiscal Year 1989) prohibits expenditure of funds for such systems.

What is the Air Force doing to properly measure the cost of these systems? When will the required Air Force and OSD oversight reviews be accomplished? Are funds being withheld from obligation as required by law?

Answer. The Air Force has just begun its review of the DOD IG Report on Information Resources Management. Consequently, it would be premature to provide any preliminary opinions on the report's findings or recommendations. We expect to complete our analysis by April 17, 1989, and will forward our response to OSD at that time.

[CLERK'S NOTE.—End of questions submitted for the record. The Fiscal Year 1990 Air Force Joint Posture Statement as referred to on page 215, follows:]

MCMXLVII

The
UNITED STATES
AIR FORCE
REPORT
to the
101st CONGRESS
# of the
UNITED STATES
# of AMERICA

presented to the
COMMITTEES on ARMED SERVICES
and
DEFENSE APPROPRIATIONS SUBCOMMITTEES
of the
UNITED STATES SENATE
and the
UNITED STATES
HOUSE OF REPRESENTATIVES

FISCAL YEAR 1990

EXECUTIVE SUMMARY

The mission of the United States Air Force is to organize, train, equip, provide, and support aerospace forces to deter aggression and, if necessary, defeat aggressors across the spectrum of conflict. This supports the most fundamental national security objective of the United States, the preservation of our free and independent nation with its institutions and values intact.

National Security Objectives Dictate Military Forces. There is a direct linkage between national security objectives, the resulting national military strategy, and the military tasks and capabilities required to underwrite that strategy. The national military strategy is well-conceived and has been remarkably stable in support of consistent national security objectives. That strategy, based on deterrence, is intended to ensure that no adversary could ever expect to gain by attacking the US or its allies. It is an austere strategy. We do not, either as a nation or an alliance, seek to match our adversaries weapon for weapon, let alone strive for superiority. Our goal is a cost-effective coalition of forces to deter, and that has been a consistently affordable and successful strategy for more than four decades.

The process of building coherent forces is relatively straightforward so long as there is a clear understanding of the threat, and resources are reasonably matched to the objectives of our enduring strategy.

The Threat. The continuing buildup of Soviet military power has, until recently, resulted in a public consensus on the need for a strong defense. Now, however, Mr. Gorbachev is projecting an international image that has encouraged hopes for fundamental changes in Soviet behavior. Whether *perestroika* and *glasnost*, if fully realized, will constitute a real opportunity for more fundamental improvements in US relations with the Soviet Union, and allow prudent reductions in US forces, remains to be seen. The Soviets have declared a shift to a defensive strategy of "reasonable sufficiency." However, there is little apparent change in the Soviet military posture to date. Soviet execution of their announced unilateral reductions of troops, tanks, artillery, and combat aircraft may reduce the quantitative superiority of Warsaw Pact forces, but the impact on North Atlantic Treaty Organization (NATO) force needs is unclear.

While these declared Soviet intentions should be viewed as positive, our defense requirements must be based on existing and projected Soviet capabilities rather than announced intentions. The lessons learned from past dealings with the Soviet Union clearly demonstrate the value of dealing from a position of strength and resolve. Just as the successful negotiation of the Intermediate-Range Nuclear Forces (INF) Treaty directly reflected NATO's resolve in countering Soviet SS-20 missiles, so too has US military strength demonstrated to the Soviet leadership the futility of attempting to impose their will on the free world. Our military strength remains a major influence on the course of world events, along with economic and political factors.

Matching Resources to Objectives. The essential continuity in national security objectives and national military strategy has not always been matched by a corresponding continuity in resources. The entire defense establishment has experienced a budgetary roller coaster. In the 10 to 15 years it takes to develop and field a new weapon system, there may be several substantial swings in defense funding. The inefficiency associated with this lack of stable financial planning dwarfs all other causes of inefficiency in defense procurement and programming.

In the first half of the 1980s, the support of the Administration, Congress, and the American people enabled the Air Force to redress shortfalls in readiness, sustainability, and force structure that developed during the 1970s. As a result, today's Air Force is better manned, equipped, and prepared than at any other time in history. Nevertheless, defense budget reductions over the past 4 years, and the prospect for further budget austerity, have forced us to scale back, stretch out, and cancel many programs. The cumulative effect of these reductions and the markedly reduced budget levels for FY 90/91, if continued, will severely constrain future capability. The result will be greater risk in deterring aggression around the globe.

Leveraging Investments. In seeking to maintain continuity of capabilities in a constrained resource environment, the Air Force follows a three-fold approach to leveraging its investments in today's forces and programs.

The first element of that approach is to ensure the readiness of forces already fielded by focusing on spares, support equipment, munitions, and training programs. As a result, today's tactical fighter forces can generate almost 80 percent more combat sorties than they could in 1980, and the readiness of the bomber force is at an all-time high.

The second element in leveraging our investments is to improve existing systems with cost-effective modifications and upgrades. As a result, the newest B-52, which has served us well for over 25 years, will continue to serve for at least another decade. The re-engining of the KC-135 will give that aircraft an extended service life and greatly enhanced capability. The entire C-141 fleet was improved by stretching the fuselage and adding an inflight refueling capability, resulting in an equivalent of about 90 more C-141s. And, thanks to well-executed upgrades, the 14-year-old F-15 remains the best air superiority fighter in the world.

The third element of the Air Force approach is to develop new systems, when necessary, taking advantage of US technological superiority. The front-end investment cost of new developments dictates that we seek new systems only when the need clearly requires that we exploit that technological advantage of a vibrant free enterprise system. The F-117A, B-2, C-17, and Advanced Tactical Fighter (ATF) are examples of this approach.

In addition, the Air Force will continue to emphasize good stewardship of the taxpayers' dollars. Management initiatives instituted to ensure that we get what we pay for include multi-year procurement; increased competitive bidding at all levels; dual-sourcing; equipment warranties; a vigorous program to avoid fraud, waste, and abuse; and active productivity improvement programs that are built on capital investments, enhanced work methods, and grass-roots support through such means as the suggestion program. We plan even greater emphasis in the future on efforts to cut overhead and support costs in areas where that can be done without reducing force structure or readiness and sustainability.

Air Force Priorities. The Air Force recognizes the budgets that it planned and programmed for in good faith, will not be fully funded. We have therefore consciously elected to avoid the hollow force structure of the 1970s and opted instead for a reduced force structure that maintains capabilities. To provide the best possible force within the constraints of the FY 90/91 Budget, the Air Force has reexamined its overall priorities. Our top priority is to recruit, train, motivate, and retain quality people. Within the overall task of building and maintaining quality forces, our priorities are: to modernize strategic forces, maintain a high level of readiness and sustainability, increase airlift capability, modernize tactical forces, and integrate our improved ability to operate in space into every mission area.

OUR PEOPLE

As the Air Force leverages its technological advances into the most reliable and capable systems in its history, we recognize that high-quality people are needed to exploit the capabilities of this high technology. People make the difference between success and failure, and that is why we place the highest priority on recruiting, retaining, and motivating quality people. That approach has been continuous since the founding of our service 41 years ago.

Today, more than one million Air Force Active, Guard, Reserve, and civilian men and women help maintain our nation's security. Together, with Air Force retirees subject to recall to active duty, they represent the foundation of our warfighting capability and serve as the key factor in our deterrence equation.

We will continue to put first priority on providing these quality people with a positive environment which protects their health and safety, includes adequate housing, ensures adequate financial support, and maintains the many support programs which meet the special needs of our Air Force families. While this commitment to our people may present some challenges in today's fiscal environment, it is the only way the Air Force can do its job.

Our Air Force people, both military and civilian, expect and deserve a competitive compensation package, including adequate pay and allowances; either adequate government quarters or full entitlement to variable housing allowances; appropriate permanent change of station reimbursements; quality health care; and other benefits. Unfortunately, due to a number of pay caps since the early 1980s, which have held pay raises below private sector wage growth, the comparability gap has grown to 10.1 percent--even after the positive 4.3 percent pay raise this past January. For FY 90, we urge the Congress to continue this positive initiative with a 3.6 percent military pay increase. Without such basic entitlements, we will see a decline in the success of our recruiting efforts in the competitive marketplace.

Although retention remains relatively strong in most career specialties, there is a serious decline in pilot retention rates. The pilot Cumulative Continuation Rate (CCR) has dropped from a high of 78 percent in FY 83 to 40 percent by the second quarter of FY 89. Last year we lost nearly 800 more pilots than we produced, and the pilot retention forecast for FY 89 falls well short of the 63 percent retention rate we need to maintain a healthy, experienced force.

While we are undertaking many leadership and management initiatives to redress pilot concerns, it is obvious that monetary incentives must also be employed to reverse this downward trend. We are currently implementing the new

Aviator Continuation Pay (ACP) by targeting it to the retention sensitive specialties, as directed by Congress. We forecast positive results and request continued congressional support for the bonus program, including an expansion of eligibility payment years. While the bonus represents a near-term fix, Aviation Career Incentive Pay (ACIP) remains the foundation of special aviator compensation and, as such, needs adjustment to restore the purchasing power lost since it was last raised in 1981.

In addition to focusing intensely on pilot retention problems, we are trying to minimize the impact of drawdowns in the officer and enlisted force. These reductions have been the result of budgetary and congressional direction. While we are using voluntary actions to the extent possible, we have been forced to use some involuntary separation actions. These reductions have involved difficult decisions, and we remain concerned about the long-term impact on the morale and combat readiness of the force.

STRATEGIC FORCES

Intercontinental Ballistic Missiles (ICBMs) are the most responsive element of the strategic Triad, combining accuracy and high daily alert rates to hold time-urgent, hardened, Soviet warfighting assets at risk. The foundation of our ICBM modernization program is the Peacekeeper missile. Full operational capability for the first 50 Peacekeeper missiles in existing silos was achieved on schedule in December 1988, and the FY 90/91 Budget continues development of a rail garrison basing mode. Current plans are to deploy the 50 operational Peacekeepers in rail garrison. Deploying the Peacekeeper day-to-day in secure areas and dispersing it when in the national interest to do so will diversify our strategic forces, enhance deterrence and promote stability. The development of the Small ICBM (SICBM) will continue towards an operational deployment in the late 1990s. The inherent operational flexibility of this missile, coupled with the survivability of its mobile basing mode, make the SICBM the obvious next step in enhancing strategic stability and deterring nuclear war.

Bomber modernization, through deployment of the B-1B and B-2 penetrating bombers and the transition of the B-52H force to a standoff cruise missile role, will counter existing and projected Soviet air defense improvements. Each aircraft has an essential and diverse mission. Cruise missiles launched from outside defended areas, B-1Bs penetrating at low altitude and high speed, and B-2s penetrating at high and low altitudes will severely stress the Soviet air defense system.

The final B-1B was delivered ahead of schedule in April 1988. The FY 90/91 Budget will include funds to integrate a radar warning receiver into the defensive avionics suite to improve the B-1B's capability to penetrate Soviet air defenses. The first B-2 was unveiled in November 1988 and will begin flight testing this year. The first operational aircraft will be assigned to Whiteman AFB, Missouri.

The Air Force released in December 1988 updated program costs for the B-2 of $42.5 billion in baseline 1981 dollars, which equates to a then year figure of $68.1 billion. The program cost figure is under review within the Department of Defense, reflecting updated figures that resulted from a delay in full rate production. The delay was caused by a combination of reduced funding allocations due to budgetary constraints, and a desire to ensure that adequate flight test results are available before commitment to high rate production, and not to any technical problems with the program. The development cost of the B-2 has been substantially higher than the B-1B, reflecting the major technological advances involved; however, the production cost is expected to be only modestly higher, in constant dollars. To give this cost issue some perspective, the contribution of the B-2 to the strategic Triad should be considered. In terms of acquisition cost per generated warhead, the B-2 cost is similar to the B-1, less expensive than modern ICBMs, and somewhat more expensive than submarine launched ballistic missiles.

The continued modernization of the bomber force is even more critical when viewed against the background of a potential strategic arms reductions agreement. One of the principle virtues of the Strategic Arms Reduction Talks (START) will be a movement away from "fast-flying" ballistic missile warheads to more stabilizing bomber-delivered warheads.

Strategic defensive forces enhance deterrence by providing integrated tactical warning and attack assessment capabilities to detect, identify, and characterize attacks against North America. We are continuing modernization of our ballistic missile and atmospheric warning systems. Our defense capability against the air-breathing threat will improve with enhancements to the E-3A Airborne Warning and Control System (AWACS) and the continued deployment of the F-16 air defense aircraft with its improved all-weather weapons employment capability.

Improvements in our strategic command, control, and communications (C^3) are necessary because this area is so vital to our strategic deterrent posture. We have accomplished a great deal in improving our capability in C^3 in the last several years, but this trend must continue if we are to keep pace with the Soviet offensive threat.

READINESS AND SUSTAINABILITY

While modernization programs and force structure gain the most public interest, effective warfighting capability demands equal attention to necessary investments in readiness and sustainability.

Over the past 8 years, support for these less glamorous, but essential, programs has created the most ready, most effective air force on earth. Aircraft mission capable rates peaked at an all-time high across the Air Force in 1988. Peacetime training programs have achieved degrees of realism previously impossible. Sustainment stocks have been substantially improved with modernized weapons to replace the Vietnam-era systems with which we entered the 1980s.

But readiness and sustainability require continued support and have already begun to show the effects of the inconsistent funding pattern seen over the past few years. While the Air Force has placed a high priority on protecting readiness, the deep cuts we have sustained have made it impossible to protect all the elements that go into sustaining the readiness of our forces.

Beyond affecting immediate capabilities, cuts in these accounts impair the long-term health of our forces. Reductions in the military construction account, for example, result in deteriorating facilities and in slowing the replacement rate for obsolete buildings. Cuts in depot repair/modification, over time, result in fewer mission capable aircraft and, as war readiness spares kits/base-level self-sufficiency spares stocks are withdrawn to maintain the peacetime flying program, sustainability suffers further.

FORCE PROJECTION

US force projection capability is essential to protect US national security interests. Our national military strategy demands a capability to respond to global challenges. The proper balance among airlift, sealift, and prepositioning enables us to deploy, employ, and sustain forces in a timely manner. Although sealift provides the greater part of US sustainment capability, there is no substitute for the speed and flexibility of airlift forces.

By the end of 1989, our programs to modify aircraft, increase spares, and procure new cargo and tanker aircraft will nearly double the strategic airlift capability of 1980. Despite these improvements, airlift capability still remains significantly below the nation's need.

The FY 90/91 program continues procurement of the cost-effective C-17 cargo aircraft. The C-17 will modernize the strategic airlift force and increase theater airlift capability. For the first time, we will field a strategic airlift aircraft with the ability to deliver a full range of Army equipment directly where needed, even into austere airfields.

Because strategic and conventional force air refueling requirements increasingly outstrip current capacity, we must continue to increase air refueling capability. The ongoing program to modernize the KC-135 tanker will result in a 50-percent increase in fuel offload capability at a fraction of the cost of a new aircraft.

The Air Force is intensifying efforts to increase the effectiveness of all force projection assets in support of national objectives. These forces are needed to meet the threat across the spectrum from low-intensity conflict and contingency operations to the highest levels of conflict.

TACTICAL/THEATER FORCES

Soviet theater capabilities have continued to grow despite announced changes in doctrine and in force structure. Their forces, which now include highly maneuverable fighters armed with look-down/shoot down ordnance, are increasingly comparable to current Air Force systems. These advanced aircraft threaten the Air Force's ability to provide the air superiority which gives freedom of action to all allied theater forces.

Two high-priority programs--the Advanced Tactical Fighter (ATF) and the Advanced Medium Range Air-to-Air Missile (AMRAAM)--will enable our forces to maintain a technical edge on our adversaries. The ATF will incorporate low-observable technology, supersonic cruise and maneuver, and advanced avionics to yield lethality and survivability far superior to any current aircraft. Development continues toward a planned Initial Operational Capability (IOC) in the latter half of the 90s. The AMRAAM, now in low-rate production, is undergoing an extensive test program and achieving a success rate near 80 percent. The test program is scheduled for completion in time to support a full-rate production decision in the fall of 1990. This missile will provide a launch-and-maneuver, multiple-kills-per-engagement capability necessary against numerically superior forces as well as improved resistance to electronic countermeasures (ECM) over existing radar missiles.

Modernization efforts continue in ground attack forces as well. The F-15E will reach IOC in September 1989, an important step toward filling urgently required all-weather deep penetration capability. The LANTIRN navigation/targeting system will also reach IOC in 1989, enabling F-15Es and F-16 C/Ds to conduct night interdiction missions. This capability will provide our theater commanders a highly effective means of disrupting massed mechanized forces during the march to combat and, where necessary, in the close battle.

The Air Force has requested funds to procure 150 multi-role F-16s in FY 90. This aircraft provides a solid example of the strength of the Air Force's three-fold approach to building combat capability: its mission-capable rate is about 80 percent, and the F-16s now being procured will enjoy all-weather attack and air superiority capabilities far beyond those of earlier models.

The Air Force places a high priority on close air support/battlefield air interdiction (CAS/BAI) to provide direct support to the AirLand battle. The increased enemy air defense threat and the Follow on Forces Attack (FOFA) concept of operations have resulted in the need to replace the A-10A. The decision on acquiring new A-16s, specialized for this role, will be approached through the defense acquisition board process. In the interim, the budget contains the funds needed to upgrade three wings of A-10s for continuing use for the close in battle and for longer term use as low intensity conflict aircraft and as forward air control platforms. The budget also contains funds to upgrade two wings of F-16s to a configuration more specialized for the CAS and BAI roles.

We continue to modernize and expand the capabilities of our special operations forces (SOF). Working closely with the Office of the Secretary of Defense, US Special Operations Command, and the other Services, the Air Force has focused on fielding SOF to meet the specialized needs of theater commanders across all levels of conflict.

While these systems will provide capabilities beyond those of current forces, it is important to note that the downturn in defense budgets, which has occurred over the past 4 years, has forced the Air Force to reduce its fighter force structure program from 37 wings to 35. Such a reduction entails an increased risk to the Air Force's ability to play its assigned part in achieving the Nation's defense goals in a major conflict.

SPACE

The space launch recovery effort, which has been strongly supported by Congress, bore fruit in 1988 with the successful launches of all our existing unmanned boosters--the Atlas, Titan II, Scout, Delta, and Titan 34D--and the return to flight status of the space shuttle. In 1989, revitalized launch operations will continue with the advent of the Titan IV to replace the Titan 34D as our heaviest unmanned vehicle and with the first flight of the Delta II. The continuation of our other launch vehicle programs, Titan II and Atlas II, are also critical to lift into orbit the nation's highest priority national security payloads.

Air Force space-based support for terrestrial forces continues to expand. The force enhancement capabilities of space forces will be further strengthened by the introduction of the Navstar Global Positioning System (GPS), a navigational satellite which had its first operational launch aboard a Delta II in 1989. This system is scheduled to reach full operational capability in 1992.

The Air Force continues to conduct space-based surveillance to provide timely and unambiguous tactical warning and attack assessment to the National Command Authorities (NCA) and combatant commanders and to provide space-based weather data to a wide range of users. The Boost-phase Surveillance and Tracking System and the Space-based Surveillance and Tracking System, which are now a part of the Strategic Defense Initiative, will provide even greater capability in the future to warn the NCA of hostile actions by potential adversaries. The Air Force is also continuing to develop and field multi-user communications systems to support both strategic and tactical communications requirements. Wide-area surveillance from space is now both technically feasible and operationally necessary to support air defense and theater operations. The Air Force is actively exploring concepts for a space-based radar to fill these requirements.

Space power will be as decisive in future conflict as air power is today. The Air Force must ensure that space-based capabilities are fully exploited within the constraints of technology, policy, and cost-effectiveness and are fully integrated into all elements of our combat forces.

Over the past year, the Air Force conducted a major assessment of its current space capabilities and future requirements, and is defining a roadmap to guide the long-term growth of our space forces in achieving these goals.

CONCLUSION

The Air Force FY 90/91 Budget balances the need for quality people and quality forces. However, without the stability in budgeting that only Congress can provide, we cannot deliver quality, programmed forces in sufficient quantity at acceptable costs and with prudent risk.

Numerous studies have shown that stability in defense spending is the most effective method for improving management and reducing costs. The unstable funding environment of the last several years disrupts long-term defense programs. Similarly, the timeliness of the Authorization and Appropriations Bills, which directly affect all military operations, is crucial to better planning.

We are prepared to work with the Congress to ensure the United States Air Force remains a formidable aerospace force underwriting the national military strategy, today and in the future.

Larry D Welch
LARRY D. WELCH, General, USAF
Chief of Staff, United States Air Force

Donald B Rice
DONALD B. RICE
Secretary of the Air Force

OUR PEOPLE

Today more than one million Air Force Active, Guard, Reserve, and civilian men and women maintain our nation's security. Air Force retirees subject to recall to active duty also contribute to the team. Today's Air Force members are better educated and more technically trained than ever before. These quality people are the backbone of our warfighting capability and meeting their needs remains our first priority.

Military Pay. The first priority is that military pay should be comparable with private sector wages to attract and retain sufficient numbers of high-quality recruits. That principle formed the foundation of the all-volunteer force in the early 1970s. Unfortunately, due to a number of pay caps since the early 1980s, which held pay raises below private sector wage growth, the comparability gap has grown to 10.1 percent--even after the positive 4.3 percent pay raise this past January.

To preserve recruiting and retention levels necessary to ensure a high state of readiness, the Air Force urges congressional support for the 3.6 and 3.2 percent military pay raises for FY 90 and FY 91, respectively. These raises represent the absolute minimum required for us to maintain the quality forces we need. The worrisome drop in pilot retention demonstrates the volatility of the situation.

Pilot Retention. While overall retention rates are strong, pilot retention rates remain a problem as the Air Force continues to lose well-trained, experienced pilots. This is largely due to increased competition with the commercial airline industry for quality pilots--a trend expected to continue through the middle 1990s. Pilot retention is at a crisis state and is a major Air Force concern.

Today, pilot retention is at a critical level, with a decline in cumulative retention from a high of 78 percent in FY 83 to 43 percent in FY 88. Last year, we lost more pilots than we produced; the forecast for FY 89 is worse. To maintain a healthy, experienced force, we need to retain approximately 63 percent of our mid-career pilot force. The loss of experienced pilots could ultimately translate into decreased readiness/operational capability, decreased flying safety, and increased training costs.

The Air Force is actively pursuing retention initiatives to improve overall force management, including restructuring staff and supervisory requirements to include more nonrated positions. While these leadership management programs will help stem the tide of pilot losses, we also need to increase monetary incentives for our rated force.

The Aviator Continuation Pay (ACP) program implemented by the Air Force in January 1989 provides a needed financial pilot retention tool. Although a step in the right direction, the pilot bonus offers only a partial fix to the pilot retention dilemma; consequently, we must complement this short-term orientation by demonstrating a long-term commitment. The Aviation Career Improvement Act (ACIA) of 1989 embodies this multifaceted retention approach. This proposed legislation demonstrates long-term resolve by offering increased Aviation Career Incentive Pay (ACIP) and retains short-term flexibility by continuing the authority for the bonus program. Even though there are several points in this legislation that need to be resolved, the tone of the legislation is positive and warrants continued support.

Variable Housing Allowance. The Variable Housing Allowance (VHA) was implemented in 1980 to defray housing expenses in high cost areas. When the program was restructured in FY 85 to improve cost effectiveness and reduce excessive out-of-pocket expenses, the law provided for annual inflationary adjustments to the total VHA budget.

Although the VHA program was designed so members only absorbed 15 percent of the nationwide median housing costs, VHA funding and lower than required Basic Allowance for Quarters (BAQ) increases resulted in increased out-of-pocket costs growing from 20 percent in FY 87 to 21.5 percent in FY 89. The FY 89 budget adjusted the VHA rates to reflect the latest housing survey data--resulting in higher VHA rates for approximately 308,700 military members and lower rates for about 617,300 military members. Still, even after an average 4.3 percent pay raise, some of our people had a net pay decrease because of VHA adjustments and the arbitrary cap.

The increased absorption factor (caused by the denial of annual VHA inflation increases and depressed BAQ rates) and the VHA offset compromise the intent of VHA and undermine our people's confidence in prior congressional commitments.

The Air Force supports full VHA entitlements for all eligible personnel and requests that all artificial caps or restrictions to VHA be removed.

PCS Reimbursements. Adequate funding for permanent change of station (PCS) moves remains an important issue for Air Force personnel. While legislation from FY 86 through FY 89 produced some relief from the financial hardship to members caused by PCS moves, more help is needed.

In past years, DOD requested funding increases for the full Dislocation Allowance--two months BAQ. Although the full Dislocation Allowance is authorized by law, the requested budget funding has not been appropriated, nor authority provided the Services to fund out of existing programs. Accordingly, we are requesting a modified authority, and removal of Appropriations Act limitation, to allow payment of one month BAQ without itemization and full payment of the two month's BAQ with itemized expenses.

Relocation Assistance. The Air Force is aggressively pursuing a private sector initiative to encourage the commercial sector, on a cost-free and nonexclusive basis, to offer our members nationwide relocation assistance to ease the trauma of PCS moves and speed relocation processes. Nationwide vendors are offering our members assistance in buying and selling homes, mortgages, rental home-finding, and spousal employment. Furthermore, these vendors are discounting fees of available services in the private sector to reduce the impact of frequent relocations.

Family Matters. The Air Force recognizes the important role that families play in the overall quality of life for our Service members and has placed special emphasis on developing programs to meet the hardships that result from military service. This commitment to families also reflects the demographic changes that are underway in society. By the end of the decade, it is projected that 80 percent of Air Force spouses will be in the labor force. Also, the percentage of step-parents, single-parents, and other non-traditional families will increase.

To respond to many of those special family needs, we have accelerated development of our Air Force Family Support Centers. These centers offer programs on such topics as spouse employment, relocation assistance, crisis and financial management, plus family and skills development. To date, we have 80 Family Support Centers operating around the world, with plans to expand that number to 123 centers by FY 1991. Also, we are exploring various initiatives that will enhance the operation and quality of our day care facilities--better meeting the unique needs of our members.

These programs require continued strong support from Congress in order to maintain a positive environment for our Air Force families and to assure the readiness of our members.

Military Family Housing. Improving or revitalizing our aging housing inventory continues to be our top facility priority. Our military members and their families expect and deserve homes which meet current standards of livability, either non-government or government-provided housing. The Air Force has some 80,000 units, which urgently require either revitalization or replacement. At our present rate of investment, it will take over 20 years to satisfy this backlog. We must find a way to accelerate this top-priority facility requirement within projected budget levels. We cannot afford to lose highly trained Air Force members because adequate housing on or near our military installations is not available. Also, we cannot afford to let our existing military family housing inventory deteriorate further. Private sector financed approaches such as a revised Capehart Authority appear to be most attractive alternatives.

Health Care. The Air Force Medical Service develops and operates a comprehensive community health care system that maintains the health and morale of Air Force members. Recruiting, training, and retaining high-quality medical personnel constitute critical elements for the effective management and operation of that system.

Conditions within many health care facilities have reverted to those Congress alluded to in its 1979 report: i.e., long lines at clinics; hospital beds empty and operating rooms unused due to lack of staff; and the separation of many medical officers.

The positive impact of the 1980 Medical Special Pay Program on the medical officer community provides evidence that compensation can help solve the type of problems we face. Towards that end, the Congress created the 1989 Medical Officer Retention Bonus (MORB) as an interim measure until it could restructure the medical special pay program to reduce the disparity between military and civilian compensation. The MORB has been well received by military physicians and the Services are concerned that the requests for MORB contracts will exceed the congressional ceiling of $30M.

Unless we revise medical officer compensation on a long-term basis, reducing the growing military-civilian pay gap, the physician shortages we are currently experiencing will increase rapidly. The end result will be a serious deterioration in access to quality health care for dependents, retirees, and ultimately for active duty personnel. Efforts to reduce physician shortfalls in all medical specialties will require continued congressional support.

The Air Force supports the concept of catchment area management as the best approach to providing high quality accessible and affordable health care services to our beneficiaries. Under the catchment area management system, local hospital and clinic commanders are vested with full authority for managing all health care resources in their geographic areas to maintain an efficient, cost-effective system.

The Air Force has catchment area demonstration projects underway to evaluate and demonstrate the merits of the local management concept of operations. Support of these projects and future expansion of related concepts will help promote and perpetuate decentralized health care which is in the best interest of our families and improves mission responsiveness.

The Air Force has begun other local initiatives to improve access to high-quality health care, while increasing management of the direct care program costs. In FY 89 Congress provided increased flexibility for using a portion of the CHAMPUS budget for innovative health care delivery initiatives designed to provide net CHAMPUS savings. This flexibility expands the options of local military hospital/clinic commanders and enhances their leverage in negotiating favorable contract services. This flexibility also supports the objective of maximizing use of the direct care system medical facilities. The Air Force fully supports this flexibility in use of CHAMPUS resources and encourages Congress to continue its support in that regard.

Officer Reductions. The FY 90/91 Budget will implement the final Air Force officer reductions mandated by the FY 89 Authorization Act. In fact, the FY 90 Air Force officer end strength of 102,242 is 196 officer positions below the 102,438 required by Congress. This represents a decrease of over 6,800 officers from the designated FY 86 officer end strength baseline of 109,048 officers.

The Air Force has undertaken a balanced approach in managing personnel cuts--reducing the number of officers brought on active duty, encouraging early separations and implementing limited involuntary actions. For example, the Air Force conducted a Selective Early Retirement Board (SERB) in FY 89 to help meet the reduction. This was the first time the Air Force had used a SERB, and we are concerned about the potential impact on morale over the long term. Nonprogrammatic reductions are harmful, because they often involve taking drastic actions which do not account for mission needs. We hope to avoid other involuntary separation actions to meet the remaining cuts; however, this may not be possible. The experience gap left when people are separated early will have a long-term effect on our combat readiness and management of the personnel force.

DOD Inspector General (IG) Review of Unified and Specified Command Headquarters. In December 1987 the Secretary of Defense directed a review of the organization of unified and specified command headquarters, their Service component headquarters, and other supporting units for the purpose of reducing manpower costs, overhead costs, and overlapping responsibilities. The study report issued 26 February 1988 recommended a 7,309-space manpower reduction.

The SECDEF and JCS review of the report resulted in a directed 3,000 authorization reduction in base operations support management and headquarters staffs of the unified, specified, and supporting component command headquarters staffs. The Joint Staff and the Services developed a methodology which allocated the reduction among the Services, joint commands, and agencies. The Air Force allocated share of that total reduction was 1,173 spaces--1,037 from Air Force component commands and 136 spaces from joint commands and agencies. Of this total, 747 spaces were taken as a reduction to end strength, and the remaining 426 spaces were realigned within the Air Force to meet critical combat skill shortages.

Manpower Adjustments. Other changes in force structure due to budgetary constraints and the phaseout of the Ground Launched Cruise Missile (GLCM) will significantly affect the Air Force military personnel strength for FY 90 and FY 91. In FY 90, the Air Force programs a decrease of 7,750 military spaces from the FY 89 authorized level. In FY 91 an additional 1,150 positions will be eliminated. These changes bring military authorizations to their lowest level since FY 80.

Recruiting. The Air Force continues to meet all its enlisted and line officer recruiting objectives. While current Air Force recruiting remains solid, a more competitive marketplace, may impact future recruiting success. In FY 88, non-prior service enlistment levels were driven down by fiscal limitations to only 41,200 people--the lowest in Air Force history. The combined effects of low unemployment, civilian competition, declining youth population, and budgetary restraints could limit the chances for successful recruiting in FY 90 and FY 91.

The Air Force has no wartime plan to use conscripts except possibly for medical personnel. However, we support the need for registration because major mobilization requirements may force some Services to issue draft calls. Given the nature of our training, our requirement to retain significant numbers of critical enlistees, and our longer enlistments, we do not need conscription to fill our peacetime requirements.

Women in the Air Force. The Air Force continues to lead the DOD in recruiting and providing opportunities for women to serve their country. Last year's repeal of the female recruiting quota, in effect since 1985, was welcomed by the Air Force as we move toward truly gender-neutral accessions.

In January, the DOD Task Force Report on Women directed the Services to limit exclusions to those jobs involving risk of direct combat, exposure to hostile fire, or capture "providing the type, degree, and duration of such risks are equal to or greater than the combat units with which they are usually associated within a given theater of operations." Consequently, the Air Force opened RED HORSE and mobile aerial port squadrons to women. RED HORSE squadrons are highly mobile theater engineering units capable of emergency construction and heavy repair. Aerial port squadrons handle aircraft, cargo, and passengers at forward tactical air bases. The Air Force also allowed women pilots to apply for reconnaissance and EC-130 aircraft assignments starting last July.

Today, women comprise 13 percent of the Air Force, serving in all officer career fields and in all but four enlisted career fields: combat control, tactical air command and control, aerial gunner, and pararescue/recovery.

Social Actions Programs. The Air Force continues to be committed to fair and equal treatment for all personnel and to an environment free of discrimination and substance abuse. Commanders at all levels recognize the importance of these goals and are dedicated to achieving them. However, because of a 46 percent reduction in personnel driven by budget constraints, perceptions may exist that there is a de-emphasis in our commitment to these programs. We will dispel these perceptions. The Air Force is dedicated to enhancing mission readiness by promoting equity in the personnel system and preventing substance abuse among all personnel.

Pilot Training. The Air Force Trainer Masterplan is a detailed plan for future acquisition and modernization of trainer aircraft, simulators, and related equipment to support the Air Force's ability to train new pilots. Key elements of the Masterplan include acquisition of the Tanker-Transport Training System (TTTS) to allow a return to the specialized undergraduate pilot training (SUPT) system and to alleviate about one-half the workload on the T-38 aircraft which has been used to train pilots since the early 1960s. Without SUPT, the T-38 fleet cannot support pilot production requirements past the mid-1990s. The TTTS will provide sufficient aircraft for training future tanker and airlift pilots, while the T-38 aircraft will be used to train future pilots for fighter and bomber assignments. Besides TTTS, the Masterplan proposes the long-range replacement of the aging T-37 and T-38 fleets.

The congressionally-directed DOD Joint Trainer Masterplan, submitted to Congress on 15 February 1989, confirms the need to procure three trainers--(TTTS), Primary Aircraft Training System (PATS), and Bomber-Fighter Training System (BFTS) for Air Training Command. It also provides a stable, predictable funding profile. We request congressional support for the joint trainer masterplan as the long-range roadmap for pilot training.

Overseas Troop Strength Ceilings. Overseas military troop strength ceilings constitute part of a congressional strategy to encourage our allies to increase their share of the total defense burden. In FY 83 and FY 84, Congress established a ceiling in NATO European countries. A similar ceiling was established by the FY 89 DOD Appropriations Act for forces assigned to Japan and South Korea.

As determined by USCINCEUR, the Air Force portion of authorized European Troop Strength is 91,508 in FY 90 and 91,016 in FY 91. However, the Air Force's programmed strength of 91,328 and 89,197 for FY 89 and FY 90, respectively, falls below its allocated ceiling due primarily to manpower decreases associated with the GLCM drawdown. The Air Force programmed strengths could change upon completion of bilateral consultations for follow-on use of GLCM facilities.

The individual Service ceilings for Japan and South Korea will be determined by USCINCPAC. At this time, USCINCPAC has not established the Service portions of the ceilings. Depending on what portion of the FY 90 Northeast Asia Troop Strength (NEATS) ceiling is allocated to the Air Force, necessary force structure changes will be made to ensure compliance with the ceiling. Assuming, however, that the Air Force portion of the NEATS ceiling of 94,450 remains constant at its FY 87 level, then extending the NEATS ceiling into the out-years will have no effect on current programmed force structure.

US forces are deployed to potential combat theaters to preserve the peace and defend our national interest in response to a threat. Force structure based on an artificial ceiling in lieu of that required to counter the threat causes both readiness and sustainability to suffer.

Civilian Personnel. An aging labor force and a shrinking youth population will sharpen already keen competition for civilian employees. While the Air Force continues to take the lead in developing strategies to meet civilian personnel needs, we face severe challenges. Requirements will be concentrated in the same occupations as the private sector. In the 1990s, the Air Force must become competitive with the private sector in both retaining and recruiting quality personnel.

Our first priority is to maintain our experienced work force. Financial rewards for government service must be improved. The pay gap between federal and private sector salaries has increased to 26 percent. Furthermore, the attractiveness of the federal health benefits program has dropped as premiums soared an average of 30 percent over the past year. These disincentives to federal service become more significant in light of the portability of the new federal employees retirement system. This program makes voluntary transfers to the private sector simpler than ever before.

To begin to remedy these problems, we need to stabilize the pay-setting process that has alternated between pay freezes and pay increases that lag far behind those of the private sector. The Air Force is currently exploring development of a more market-sensitive pay plan. Additionally, we are developing options for modifying the Performance Management Recognition System, which expires at the end of FY 89.

Our second priority is to develop a competitive edge in recruiting. While the federal government has made some strides toward streamlining the recruiting and hiring processes, we must still compete with private employers who can offer a wide range of perquisites. We are unable to provide many recruitment benefits such as moving costs, recruitment bonuses, loan forgiveness, or substantial educational support. As a first step in this direction, we urge Congress to enact legislation to provide payment for advanced degree programs. This will help in the recruitment of professionals, particularly scientists and engineers. On March 20, the Administration submitted a proposal to accomplish this.

Finally, improving overall civilian force management is consistent with congressional guidance that eliminates continental United States DOD end strength ceilings. We also urge Congress to drop the overseas workyear ceiling. Ceilings hinder effective management because decisions are based on accounting systems rather than the mission. Given the positive record over the last three years of living within numerical and budget guidance, we strongly urge Congress to enact legislation to permanently prohibit the use of end strengths to manage civilian personnel.

Total Force. The Air Force continues to modernize and expand the missions of the Air Reserve Component with the transfer of F-15s, F-16s, C-141s, and C-130s. Current missions that have significant Guard and Reserve participation include: strategic air defense, tactical airlift, strategic airlift, tactical fighter, air refueling, tactical reconnaissance, aerial port, tactical control, combat communications, medical services, civil engineering, medical readiness, rescue, and aeromedical evacuation.

The Air Force continually reviews missions for additional transfer to Guard and Reserve units. Although cost savings is often cited as the driving criterion, our main consideration continues to be timely force employment. Balancing Guard and Reserve cost savings with Active Force responsiveness helps attain national objectives. However, achieving the most effective mix of Active, Guard, and Reserve manpower in compliance with Defense Department total force policies and guidance should be a Service decision.

STRATEGIC FORCES

Strategic forces provide deterrence across a broad spectrum of nuclear and conventional conflict, and recent modernization efforts have revitalized Air Force contributions to our deterrent posture. However, reduced funding levels or fiscal constraints inconsistent with the threat erode recent force enhancements and increase risks to our national security.

STRATEGIC OFFENSE

Strategic offensive forces form the cornerstone of our national military strategy. To succeed, these forces must be able to hold an enemy's most valued assets at risk while limiting damage to the US and our allies. As long as we possess such capabilities and have the national resolve to employ them as necessary, adversaries will be effectively deterred from attacking the US.

The US Triad of bombers, land-based intercontinental ballistic missiles (ICBM), and sea-launched ballistic missiles (SLBM) continues to provide this nation with a powerful and credible deterrent. Individually, none of the Triad legs represents an ultimate capability or deterrent solution; together, they significantly complicate enemy attack planning. From an adversary's point of view, a modernized and well-maintained Triad presents a convincing deterrent. The diversity of the Triad also provides an important hedge against a catastrophic system failure or Soviet technological breakthrough that could degrade the retaliatory capability of any single Triad leg.

Although the Triad is inherently resilient and currently meets the fundamental military objective of deterrence, Air Force strategic program modernization must continue in order to ensure a credible deterrent for the future. Modernization enhances stability by increasing the certainty that aggression will result in prompt, effective retaliation. Delays in modernization programs increase our national security risks.

ICBM MODERNIZATION

The ICBM is the most responsive element of the Triad, historically maintaining nearly a 100 percent alert rate and comprising about half of the nation's day-to-day alert weapons. They provide our best capability for promptly placing at risk the hardest of high-priority, time-sensitive, high-value Soviet warfighting assets. These include command and control facilities and ICBM silos. The ICBM's relatively low operation and maintenance costs, high reliability, secure connectivity, planning flexibility, and quick response time distinguish it among strategic forces.

Peacekeeper. The Peacekeeper missile forms the core of our ICBM modernization program. It carries up to 10 independently targeted warheads with greater accuracy than any other ballistic missile. Fifty Peacekeeper missiles replaced an equal number of Minuteman III missiles at F.E. Warren AFB, Wyoming, achieving full operational capability (FOC) in December 1988 as projected. However, in keeping with the long-standing goal of improving the capability and survivability of the ICBM leg of the Triad, the President has decided to add mobility to a portion of our land-based missiles. To achieve this goal, Peacekeeper Rail Garrision is now under development. This advanced basing mode uses mobility to enhance survivability and is scheduled to achieve initial operational capability (IOC) in FY 92.

While the Peacekeeper in Minuteman silos program was completed on schedule, production and delivery delays of Peacekeeper Inertial Measurement Units (IMU) slowed the alert posturing of some missiles. Aggressive management action restored IMU delivery rates and preserved the original FOC date of December 1988. To prevent another IMU shortfall, the Air Force awarded a second source IMU production contract with deliveries to begin in 1990.

Contrary to some unofficial reports, IMU problems have not adversely affected system accuracy or in-flight reliability. All 18 flight tests have been successful, meeting or exceeding design goals, while demonstrating outstanding accuracy and functional performance. We achieved mature system accuracy 2 to 4 years earlier than anticipated.

Peacekeeper Rail Garrison is a cost- and manpower-efficient mobile basing mode which increases survivability and expands employment flexibility. With its distinctive operating characteristics, Peacekeeper Rail Garrison complements silo-based ICBMs and other Triad systems. This approach creates a range of attack problems for the Soviets and thus increases deterrence.

Operationally, Peacekeeper Rail Garrison missile trains will remain in secure areas, or garrisons, on existing bases during peacetime. In times of national need, the trains could rapidly move to other safe locations. This defensive move improves system survivability and serves as a nonthreatening signal of national resolve. When dispersed, missile trains will blend in with other rail traffic and complicate the enemy targeting process. In addition to this mobile scenario, however, the missiles can, if required, be launched immediately without ever leaving the garrison; missile launch is not dependent on train dispersal. Once funding is approved by Congress, today's silo-based Peacekeepers can be redeployed into rail garrison. The current schedule calls for the first mobile Peacekeepers to be operational in 1992 with all silo-based Peacekeepers transitioned to rail garrison by the mid-1990s.

Our FY 90/91 Budget request for Peacekeeper also includes funding for continued procurement of test and spare missiles. Congressional reductions in FY 84 through FY 88 Peacekeeper production funding led the Air Force to request only 12 missiles in FYs 90 and 91. If continued through the remaining acquisition period, this production rate will increase total program costs substantially. Facilities were initially sized for the economic production rate of 48 missiles per year. Buying only 12 per year is inefficient in that overhead costs will approach 60 percent of the total missile costs.

Small ICBM. The Small ICBM is designed to provide increased survivability and enhance operations in the post-attack environment. The program suffered severe budget cuts in FY 88 and FY 89, and was taken out of full-scale development (FSD). However, FY 89 funding preserved the option to restart the program. The amended budget now includes $100 million in FY 90 and $200 million in FY 91 for the Small ICBM program, leading towards an operational deployment of the system in the late 1990s.

Minuteman. Although over 25 years old, the Minuteman system continues to be effective against all but the very hardest of targets. The least costly element of the Triad to operate and support, it will remain a key element of US strategic offensive forces into the next century. However, since it is well past the original projected service life, Minuteman does require continued modernization to assure sustained reliability and effectiveness. These investments assume added significance since funding constraints have scaled back ICBM modernization.

Advanced Strategic Missile Systems (ASMS) Program. The Soviet Union's throwweight advantages, fielded advanced ballistic missile defenses (BMD), and offensive upgrade programs (e.g., increasing missile accuracy) make it prudent for us to examine ways to retain our missile force's effectiveness. The Air Force ASMS Program accomplishes this by exploring and developing key ballistic missile technologies and concepts for operational ICBM applications. In ASMS, early development work is pursued to gain confidence in the engineering feasibility of new technologies before entry into FSD. Advanced ICBM technologies currently being explored include maneuvering reentry vehicles, earth penetrating weapons, and future-generation penetration aids. These advanced research efforts increase confidence in the feasibility of new technologies and concepts that will enhance the survivability, penetration effectiveness, and overall performance of US ICBMs.

BOMBER MODERNIZATION

The manned bomber is the most flexible element of the strategic Triad. Since it can be recalled or redirected after launch, make real-time damage assessments, and be reconstituted for follow-on missions, the bomber provides capabilities not found in any ballistic missile. It can also carry a variety of nuclear and conventional weapons, and attack widely separated targets. Because of increasing Soviet emphasis on relocatable targets, such as mobile ICBMs and command centers, the bomber's potential for locating and destroying such relocatable systems is essential for effective deterrence. Bombers can be generated, launched, or dispersed during time of national crisis to enhance survivability or signal resolve. In conventional scenarios, strategic bombers can deliver a large number of weapons virtually anywhere in the world on short notice without forward basing. In maritime roles, bombers provide long-range sea surveillance, minelaying, and ship attack.

The Bomber Modernization Program counters Soviet defense improvements. The B-1B is the near-term follow-on penetrating bomber to the B-52. The 100th B-1B was delivered ahead of schedule in April 1988, and the planes have been based at Dyess AFB, Texas; Ellsworth AFB, South Dakota; Grand Forks AFB, North Dakota; and McConnell AFB, Kansas. Deployment of the B-2 Advanced Technology Bomber, which begins in the 1990s, will ensure a manned penetration capability well into the 21st century. A fully modernized bomber force composed of cruise-missile-equipped B-52s, low-altitude penetrating B-1Bs, and all-altitude penetrating B-2s will place maximum stress on Soviet air defenses.

B-1B. The B-1B performs today's strategic bomber penetration mission better than any other operational aircraft in the world. Its ability to penetrate sophisticated defenses stems from the synergism of its high speed, low-altitude tactics, low radar cross section, highly accurate navigation, flexible route planning, and electronic countermeasures (ECM). In every aspect except ECM, the aircraft meets or exceeds Air Force expectations and, with maturity, its capability will improve. As demonstrated by 36 world records, the B-1B has the range and payload to carry out global power projection.

Despite its overall success, the B-1B has experienced problems with the ALQ-161 ECM suite. Although the most critical ECM techniques do work, recent flight test activities revealed the defensive avionics system has a design deficiency which precludes full system performance. The Air Force Electronic Combat Office assessed available options that would meet near- and long-term requirements. Based on this study, the Air Force will proceed with the present defensive avionics contractor on a "core" program while developing a future stand-alone radar warning capability to augment the ALQ-161.

B-2. The B-2 Advanced Technology Bomber culminates a highly successful research and development program that began in the 1970s. It effectively leverages advanced US low-observable technologies against the large Soviet investment in air defense systems. These technologies, unavailable when the B-1B was designed, will negate or severely stress Soviet advances in surface-to-air missiles and look-down/shoot-down interceptors. The long-range B-2 will operate across the full spectrum of conflict from show-of-force through nuclear war. It will be capable of striking both fixed and some relocatable targets with a wide range of nuclear and nonnuclear weapons. Additionally, the aerodynamic design of the aircraft is markedly more efficient than its predecessors. The B-2 development program emphasizes reliability and maintainability initiatives that will increase aircraft combat capability and availability while reducing the cost of operation.

B-52. The B-52 has been the mainstay of the Triad's manned bomber leg for more than a quarter of a century. It will continue to be a vital element in bomber force structure, along with the B-1B, even as the B-2 enters the active inventory. In the 1990s, the B-52H will become a dedicated air-launched cruise missile carrier as the B-1B and B-2 assume complete responsibility for the penetration role. Additionally, the B-52's conventional role will continue to expand because its long-range, rapid response, extended loiter time, and large, diversified payload capabilities provide global power projection not available with other weapon systems.

The B-52 currently supports the unified Commanders-in-Chief (CINC) in nuclear, conventional, and maritime roles. Its contribution to theater operations may assume more significance with the implementation of the Intermediate Range Nuclear Forces (INF) Treaty. Evolving worldwide air defense threats, however, require the B-52 to have standoff delivery capabilities when employing conventional weapons against land and sea targets. Development and testing of the B-52's HAVE NAP missile is proceeding, answering the near-term need for a standoff capability against pinpoint targets.

Currently the B-52 supports the Navy in a standoff anti-ship role using the Harpoon missile. Additionally, the Air Force and Navy developed procedures for using B-52s in sea surveillance, reconnaissance, and mine-laying operations.

FB-111A. Although its primary mission has been strategic nuclear, the all-weather, day/night FB-111A will transition to a theater role. The Air Force plans to transfer these aircraft to the tactical air forces in the early-1990s.

AIR-TO-SURFACE MISSILES

A complementary mix of cruise missiles and short-range attack missiles improves the bomber force's ability to penetrate and survive enemy defenses. It also provides maximum targeting flexibility and limits the Soviet ability to counter the unique attributes of individual systems. Each type of weapon taxes enemy defenses differently and provides increased incentives for Soviet expenditures on defensive rather than offensive systems.

Short-Range Attack Missile (SRAM) II. The SRAM II, a replacement for the aging SRAM-A, will improve short-range supersonic delivery. Compared to the SRAM-A, it will effectively strike hardened, defended targets from longer ranges. Additionally, its rapid retargeting capability allows the bomber crew to reprogram the missile before launch, making it an effective weapon against relocatable targets. The SRAM II also has more favorable size and weight characteristics as well as improved penetration flexibility over existing air-delivered systems.

Unlike the cruise missile, the SRAM II will remain with the penetrating B-1B or B-2 until the aircraft nears the assigned target. It can then be launched outside the lethal range of the defenses so that the bomber may avoid overflying a heavily defended area. Since the SRAM II is supersonic, it can also be launched to destroy point defenses ahead of the aircraft in case overflight of a defended target is necessary for gravity-weapon release.

Advanced Cruise Missile (ACM). Air-launched cruise missiles (ALCM) are effective weapons against preplanned, fixed, hardened targets. The ACM, a timely and logical second generation cruise missile, provides significantly greater capabilities than our current ALCM. It incorporates stealth technology and improvements in range, accuracy, and targeting flexibility that enhance the long-term effectiveness of the bomber force.

STRATEGIC DEFENSE

Strategic defense forces ensure that the National Command Authorities' (NCA) strategic retaliatory capability will survive any Soviet attempt at a first strike by providing timely, reliable, and unambiguous tactical warning, attack assessment, and, ultimately, damage limitation. To accomplish these tasks, it is divided into three sub-mission areas--atmospheric defense, ballistic missile warning, and space defense. In each area, modernization is needed to preserve our deterrent posture and offset continuing Soviet growth in strategic offensive capabilities.

Atmospheric Defense. The Air Force needs to continue its atmospheric defense system upgrades. Force structure was reduced during the 1960s and 1970s as the primary threat to the US changed from bombers to ballistic missiles. We emphasized improving systems that provided tactical warning and attack assessment (TW/AA) against the increasing number and sophistication of Soviet ICBMs and SLBMs. As a result, a serious imbalance emerged between our ability to warn against ballistic missile attack and our ability to detect and defend against atmospheric attacks. Soviet development and deployment of long-range bombers and air- and sea-launched cruise missiles adds urgency to the requirement to upgrade our systems that counter air-breathing threats.

In response to the growing Soviet air-breathing threat, the Air Force developed the North American Air Defense Master Plan (ADMP). It addresses air defense and force structure requirements for TW/AA, airspace control, damage-limiting responses, and interception. Major ADMP recommendations include improving our day-to-day warning and attack assessment capability with Over-the-Horizon Backscatter (OTH-B) and North Warning System (NWS) radars, and upgrading our active defenses with modern interceptors supported by E-3 Airborne Warning and Control System (AWACS) aircraft. Since we cooperate with Canada in the atmospheric defense of North America, we signed a Memorandum of Understanding with them dividing costs and responsibilities.

OTH-B and NWS radars will complement each other in providing effective, long-range, all-altitude detection of air-breathing threats to North America. OTH-B radars extend coastal surveillance beyond the limits of our existing radar systems and provide early warning of aircraft attack at ranges of 500 to 1,800 miles. Although the program is continuing, fiscal constraints have slowed our planned OTH-B upgrade from two sectors per year to one and decreased the total number of planned OTH-B sectors from 12 to 10. The NWS will replace the aging Distant Early Warning (DEW) Line with new unattended and minimally-manned microwave radars. It will be used in the northern sector of the North American continent to close gaps in radar surveillance of the Arctic approaches.

To exploit the long-range detection capability of our modernized radars more efficiently, the air defense interceptor force is being upgraded with modified F-16s. These aircraft will provide a significant increase in capability compared to the F-106 and the F-4 it replaces.

E-3 AWACS aircraft increase our survivable command and control and provide a system capable of detecting long-range targets. AWACS patrols can also provide enhanced coverage in selected areas. The Radar System Improvement Program (RSIP) is needed to counter ongoing Soviet cruise missile deployments and projected aircraft with reduced radar cross sections. These upgrades are critical to counter the threat, especially in light of AWACS' worldwide commitments.

Ballistic Missile Tactical Warning and Attack Assessment (TW/AA). Our current ballistic missile TW/AA is provided by space-based systems, the Ballistic Missile Early Warning System (BMEWS), the Perimeter Acquisition Radar Attack Characterization System (PARCS), and PAVE PAWS phased-array SLBM detection radars. The FY 90/91 Budget continues upgrades to the BMEWS site at Fylingdales, England.

Space Defense. As outlined in the Air Force Space Policy, BMD is an area of space force application. Therefore, the Strategic Defense Initiative (SDI) is discussed in the Space chapter of this report.

STRATEGIC COMMAND, CONTROL, AND COMMUNICATIONS

Command, control, and communications (C^3) is a critical element of our strategic deterrent posture. These systems join the NCA to senior force commanders and command centers. They also link our attack warning, defensive forces, and strategic retaliatory forces assuring timely and direct execution of our national military strategy. Effective communication systems ensure that forces receive critical messages in time to permit survival, prompt response, replanning, or strike termination. They must therefore be fast, flexible, reliable, and survivable.

Although C^3 systems have been improved, modernization must continue in order to keep pace with the Soviet offensive threat. Our objective is to make C^3 systems as dynamic and survivable as the forces they support. Systems like the Ground Wave Emergency Network (GWEN), Milstar, airborne command posts, and Cheyenne Mountain Complex (CMC) improvements will help achieve this objective by providing effective ways to alert, activate, and control our retaliatory forces.

Ground Wave Emergency Network (GWEN). GWEN provides secure electromagnetic pulse (EMP) hardened, low-frequency communication to land-based strategic forces. A network of radio relay stations located throughout the country links military C^3 and warning centers with our retaliatory forces. GWEN will be fully operational in the mid-1990s.

Milstar. Milstar will furnish secure, jam-resistant satellite communication channels. Using voice and data formats, it will transfer information from attack sensors to the NCA and from the NCA to strategic retaliatory forces. With its extremely-high-frequency transmissions, Milstar will support force management before, during, and after a nuclear attack.

Airborne Command Posts. The E-4B and EC-135 airborne command posts are the most survivable command and control systems available today. The Air Force operates and supports these aircraft for the NCA, the Joint Chiefs of Staff (JCS), and CINCs of nuclear forces. Our FY 90/91 Budget continues airborne command post modernization.

Cheyenne Mountain Complex (CMC) Improvements. The CMC houses computer systems and communication facilities that monitor the air, ballistic missile, and space activities of the Soviet Union and other countries. We are currently adding and upgrading major CMC computer systems. This will improve the North American Aerospace Defense Command (NORAD) Command Post's ability to provide our strategic forces with TW/AA information.

ARMS CONTROL

A major national security objective of the US is strategic stability. Arms control, when combined with modernized strategic offensive and defensive strength, can contribute to this goal. The Air Force strongly supports efforts to reach agreements with the Soviet Union leading to deep, equitable, stabilizing, and verifiable arms reductions. Properly implemented and complied with, these measures can limit the threat, reduce uncertainties, and improve global security.

Historically, the Soviets prefer to negotiate when they can narrow a US technological advantage, codify a pro-Soviet numerical imbalance, or divide us from our allies. They negotiate seriously only when we demonstrate firm resolve and a commitment to defend our national interests. For example, NATO's steadfast deployment of Pershing II and ground-launched cruise missiles (GLCM) contributed to the Soviet decision to negotiate the INF treaty. Similarly, our continued commitment to strategic modernization provides incentives for the

Soviets to remain at the Strategic Arms Reduction Talks (START) bargaining table. Peacekeeper and Small ICBM send a strong signal concerning US resolve and our ability to counter current Soviet ICBM advantages. Deployment in the rail garrison basing mode is essential not only to meet immediate military requirements but also to provide incentive for the Soviets to engage in serious arms control negotiations.

Despite the advantages of arms control, arms reduction agreements increase, rather than decrease, the need for strategic modernization. Reductions and modernization are mutually supportive and can enhance deterrence by achieving a more stable nuclear balance. However, to maintain the same level of deterrence at reduced force levels, our remaining assets must be of the highest possible quality. Therefore, continued modernization of our remaining strategic forces becomes even more critical.

READINESS AND SUSTAINABILITY

Military forces must reach full combat potential under demanding, time-constrained circumstances. Should deterrence fail, warning time of an impending attack may be so short that peacetime readiness and on-hand sustainability assets would be the deciding factor in determining success. The Air Force investment in force structure and modern weapons production can translate into a warfighting capability only if readiness and sustainability programs function properly. Modern, well-equipped, ready forces form the basis of our capability to successfully engage the enemy at the onset of combat.

Readiness is the totality of proficiency and sufficiency in forces, units, air bases, weapon systems, and equipment. Ready forces have been trained under realistic conditions and have sufficient stocks of spares available at the beginning of combat. Ready forces deploy rapidly to employment locations, seize the initiative, engage the enemy effectively on the first day, and control the battle to a favorable result.

Major exercises and numerous deployments of Active, Guard, and Reserve units to overseas operating bases give operations, maintenance, and support personnel realistic experience in the environment in which they might fight. Improved training, adequate flying hours, and increased experience lead to safer flying operations, preserving precious manpower and equipment.

Sustainability, the staying power to fight during and beyond an initial period of combat, depends on the nation's ability to provide adequate spares, supplies, munitions, and fuel to replace those consumed in battle. This occurs only when stocks, support infrastructure, war reserve materiel, and the industrial base are in place during peacetime. Sustainability stems from the ability of the industrial base to produce the items needed by our operational forces during wartime and contingency operations. The Air Force continues to work with all Department of Defense (DOD) components and national agencies to improve industrial base capabilities, reduce the critical time it takes to transition from peacetime production rates to the much greater rates needed during national emergencies, and provide the war materiel our fighting forces will require. Our acquisition policy accounts for each dollar expended and, if appropriate, provides an incentive for the industrial base to sustain the logistics support of our forces.

Weapon system Reliability and Maintainability (R&M) improvements decrease operational demand for spare parts and maintenance resources, mobility requirements, and weapon support costs resulting in an overall increase in combat capability. Such R&M improvements enhance readiness and sustainability and leverage our investment in a force structure constrained by the current fiscal environment.

Our FY 90/91 Budget will enable us to: fully maintain peacetime spare parts stocks but procure only minimally adequate levels of wartime spares and equipment inventories for our strategic, mobility, and tactical forces; continue critical aircraft modifications; improve the responsiveness of the industrial base; improve our airbase operability; and increase, but not substantially, our inventory of modern munitions to produce gains in our sortie generation capability.

OPERATION AND MAINTENANCE

The Air Force Operation and Maintenance (O&M) appropriation finances the day-to-day operating costs of the Air Force. The O&M appropriation supports the key ingredients of combat readiness by providing the funds needed to operate and maintain aircraft and related weapons systems; train personnel; operate communications, command, and control systems; and purchase supplies, equipment, and fuel. O&M also supports essential combat related activities such as intelligence, logistics, weather, air traffic control, search and rescue, medical operations, maintenance of runways and base facilities, contract services, and the working and living environment of Air Force personnel.

Financial requirements in the O&M appropriation are influenced by force structure levels and activity rates. Examples are the number of aircraft and squadrons, the number of aircraft sorties and flying hours, equipment inventories, modification acquisition schedules, civilian end strength, training and deployments, the number of installations, and the quantity and complexity of vehicles and other equipment in operation.

O&M resources must sustain a mission-ready force of existing weapon systems as well as support newly-fielded systems. Even the most technologically advanced weapon systems require sufficient O&M funding to perform their missions. Historically, analysts measured the military capability of a nation in terms of troop strengths and quantities of hardware, ignoring readiness. Our own experiences of the 1970s taught us the consequences of building a substantial weapons inventory without adequate logistics support. In the 1980s we built more than just quantity; we also incorporated essential resources for readiness and sustainability.

In FY 90 the Air Force originally programmed for continued recovery from FY 88 with emphasis on the remaining readiness areas. However, because of a constrained Department of Defense topline, the Amended President's Budget has less than one percent real growth from FY 89. Force structure, operating tempo, and logistics support were not reduced significantly; therefore, direct readiness was not impacted. Major reductions were predominantly in readiness support areas such as Base Operating Support (BOS), Real Property Maintenance Activities (RPMA), and civilian pay. Both the BOS and RPMA areas reflect negative real growth, and civilian workyears are funded at 96 percent. FY 91 essentially maintains the FY 90 level of support and activities.

Depot Maintenance and Modernization. Depot maintenance and modernization requires a program funding level of $3.6 billion in FY 90 and $3.7 billion in FY 91. However, the actual funding level is slightly more than $3.2 billion in FY 90 and $3.3 billion in FY 91. While this level of funding does not eliminate backlogs created in FY 89 and FY 90, it does provide adequate funding to support the most critical requirements for aircraft, missile, and ground weapon systems and support equipment depot maintenance and modernization requirements. The proposed level of funding is essential to maintain the readiness of our weapons systems.

Civilian Personnel. Civilian personnel grows by nearly 300 workyears in FY 90 and 700 workyears in FY 91. Pricing changes include increases due to annualization of the FY 89 pay raise, the FY 89 health benefit costs and projected pay raises of 2 percent effective 1 January 1990, and 3 percent effective 1 January 1991.

First and Second Destination Transportation (FDT/SDT). FDT pays for the delivery of procured items from the point of manufacture to the point of first acceptance by the Air Force, while SDT provides for all onward movement from that point to the point of use or storage within the continental US (CONUS) or overseas theaters. SDT was funded at 87 percent of requirements for FY 89 and large transportation rate increases (61 percent for military sealift, 16 percent for airlift, and 7 percent for port handling) resulted in the erosion of buying power and created a backlog which will cost $8 million to move in FY 90. Funding for FY 90 will meet approximately 90 percent of requirements (FY 89 backlog included) resulting in a slight decrease in backlogs to be carried over into FY 91. Controls on the use of SDT funds in FY 89 are the diversion of Transportation Priority 2 to surface, operation of a LOGAIR system on a 6-day-per-week basis, and the deferral of cargo movements. Diversions of cargo to surface movements lengthen the transportation pipeline for peacetime spares and impact the readiness and sustainability of our overseas forces. As a result, supply and issue effectiveness will be reduced, and there will be decreased availability of War Readiness Spares Kits/Base Level Self Sufficiency Spares (WRSK/BLSS). More emphasis will be placed in FY 90/91 on expediting the movement of airlift investment spares to reduce pipeline time.

Real Property Maintenance. The Air Force's FY 90/91 Real Property Maintenance (RPM) funding request represents our efforts to maintain and upgrade our more than 30-year-old facilities. We are faced with the fact that simple annual deterioration continues faster than the maintenance and improvement program we can afford within our constrained funding. The mission impact of deteriorated facilities, while subjective, nevertheless has a negative effect on performance, quality of life, morale, and retention. The base closure act represents a great opportunity to increase the cost-effectiveness of existing resources by consolidating some activities and closing some unneeded bases.

Backlog of Maintenance and Repair (BMAR). Due to overall budgetary constraints, RPM funding could not be increased sufficiently to arrest growth in the BMAR. The BMAR is estimated to increase to $1.3 billion at the end of FY 90 and $1.6 billion at the end of FY 91.

Medical. The Medical Program shows increases for both FY 90 and FY 91 reflecting the rising costs of health care services. Since CHAMPUS was transferred to the Air Force in FY 88, additional O&M funds of approximately $100 million per year for FY 88 and FY 89 were required to cover increasing costs. In FY 90 and FY 91, CHAMPUS is sufficiently funded at $756 million and $826 million, respectively. To control future cost growth, the Air Force will introduce a series of health care initiatives with the intent of improving both the quality and availability of in-house health care. We anticipate the actions will redirect some of the workload back to our medical treatment facilities.

TRAINING

Well-trained people are essential to maintain a combat advantage. The Air Force must train aircrews and combat support personnel aggressively and realistically to make full use of the equipment and to sustain planned wartime sortie levels. We train as we would fight; that is, jointly with the other Services and our allies, so we can operate effectively together on the battlefield.

Exercises. Exercises like Red Flag, Maple Flag, and Cope Thunder provide training environments that give crews experience similar to actual combat missions and allow our crews to train on weapon ranges against simulated enemy defenses. The Air Force requires support of tactical and strategic range improvements and full funding of training munitions to maintain this standard. Joint exercises with the other Services are essential. Through the Joint Chiefs of Staff (JCS) exercise program, the Air Force gains valuable experience in joint operations. Continued congressional support of such training is vital to our readiness.

Overseas Deployments. Our training programs include deploying Active, Guard, and Reserve units to overseas locations to fly with allies in multi-national exercises and to familiarize them with deployment bases, logistics, and other support requirements, as well as theater weather and terrain.

Flying Hour Program. Since FY 84 we have consistently flown over 99 percent of the Air Force Flying Hour Program. Reduced flying hours in the mid-to-late 1970s seriously affected readiness across the Air Force, especially in the Tactical Air Forces (TAF). Starting in the early-1980s, we increased fighter flying hours each year to accommodate force structure growth (more aircraft and crews) and readiness growth (the amount of time we fly each crew member). Recent force structure and crew ratio reductions resulting from overall reduced defense spending are changing the picture.

The total FY 90/91 Flying Hour Program, including the Air Reserve Forces, is 3.3 million hours each year, approximately 3.0 percent below the FY 89 program. The Air Force Flying Hour Program has been set at the FY 87 level of activity. The FY 87 level provided the minimum level necessary for aircrew proficiency. Further reduction of flying hours, beyond those associated with a reduced force structure, would decrease overall aircrew combat capability.

Training Munitions. The Training Munitions Program provides a core element vital to the readiness of the Air Force. This program encompasses all peacetime munition expenditures (except missiles) by ground personnel and aircrews of the Active and Air Reserve Forces. Aircrews drop live ordnance, both at home ranges and during deployments. Ground security forces use extensive target complexes and ground threat simulators to improve training quality and provide an ideal environment for live weapons employment. Aircrews, ground security forces, and munitions specialists alike benefit from the exposure to training with actual combat weapons.

Annually, the Air Force expends approximately 3,000 live weapons during Red Flag, a simulated combat scenario in a realistic setting. The Red Flag goal is to have each crew participate in a live ordnance mission during each deployment. Approximately 70 percent of our air-to-ground tactical aircrews have live munitions experience, but this varies greatly at squadron level depending on location and aircraft type. The FY 90/91 Budget requests $191 million/$258 million, and is essential for seasoning new crews in ordnance delivery and maintaining or upgrading the proficiency of more experienced crews.

LOGISTICS

Logistics includes support equipment, spare parts, munitions, fuels, other supplies, and the maintenance needed at the outbreak of hostilities to sustain combat forces until the industrial base can mobilize. The Air Force logistics objectives reflect the need for enough war reserves to sustain combat and win a prolonged conventional conflict. The three major components of logistics sustainability are aircraft replenishment spares, munitions, and aviation fuel.

Combat sustainability for the Air Force improved significantly during the mid-1980s, but current fiscal constraints are beginning to erode those gains. Unfortunately, building stockpiles of war reserve consumables and spare parts is a slow and expensive process. Due to long lead times for procurement (18 to 36 months for munitions, approximately 3 years for spare parts, and 1 to 2 years for petroleum, oil, and lubricants), funding shortfalls for sustainability do not manifest themselves immediately. Conversely, the immediate application of funds to a problem will not guarantee an instantaneous solution because of the long lead times.

Aircraft Replenishment Spares. Aircraft replenishment spares are a unique commodity because they are not readily available outside of Service stockpiles even in the event of war. In a national emergency, additional aircraft spare parts might not be available for 2 or more years because of procurement and manufacturing lead times. This long lead time is caused primarily by a relatively small defense industrial base and the burden of supporting old and new aircraft technologies.

The FY 90/91 Budget reflects funds needed to support the Air Force peacetime flying program, but provides funding levels of 14 percent and 6 percent of the total FY 90/91 WRSK/BLSS requirements, respectively. This funding for the portion of sustainability spares which support our combat units for the initial period of conflict reflects a minor, but essential, start toward recovering from previous years' shortfalls. Approximately 43 percent of new WRSK/BLSS kits authorized for new aircraft deliveries through FY 93 (e.g., F-15s, F-16s, C-17s) will be procured. The Other War Reserve Materiel (OWRM) portion of our sustainability spares sustains wartime operations until industrial production of assets meets total wartime requirements. Since fully funding the OWRM requirement in FY 85, subsequent years fiscal constraints have precluded any request for OWRM funding. As on-order sustainability spares purchased between FY 85 through FY 87 continue to be received, sustainability indicators remain high. Impacts resulting from funding shortfalls will appear between FY 90 and FY 93.

Munitions. Providing top-quality, lethal munitions to combat forces, with emphasis on the air-to-air munitions, remains a high priority. However, previously programmed increases in procurement of modern air-to-ground munitions have been slowed due to the limited funding available throughout the 5-year Air Force plan (FY 90-94). Since the air-to-ground munitions procurement quantities are not growing, we are concerned that our ability to ensure competitiveness in peacetime acquisitions and maintain an adequate, warm industrial base for mobilization and wartime requirements will erode. Nevertheless, our revised program is an integrated, steady acquisition strategy to ensure the total combat capability of the Air Force.

In air-to-air munitions, we continue to receive delivery of AIM-9 missiles through FY 91. At the same time, more capable missiles are being developed to upgrade the air-to-air forces. As the Advanced Medium Range Air-to-Air Missile (AMRAAM) is phased into production, the AIM-7 will be taken out of production. Procurement of AIM-7 missiles ends in FY 89.

The existing air-to-surface inventory permits flying 100 percent of the projected wartime sorties with full weapons loads; but many of these missions would be flown with less effective substitute munitions which would ultimately increase attrition. We have large munitions stockpiles of general purpose bombs, and cluster munitions. However, most of these munitions are no longer in production and must be used periodically for training purposes. As a result, war reserve levels will decrease.

Petroleum, Oil, and Lubricants (POL). The availability of petroleum stocks is a critical logistical support area in sustaining sortie generation. The sustainability level requested in the FY 90/91 Air Force plan will cost $30.5 million/$27.1 million to fill on-base war reserve materiel (WRM) fuel storage capacity. Over the same period, the Air Force projects that the Defense Logistics Agency (DLA) will allocate some additional storage to the Air Force. While a substantial storage shortfall still exists, the combined programs, executed as planned, will reduce our existing prepositioned WRM storage needs. The Air Force program addresses storage problems at specific locations, while DLA pursues shortfalls from the larger theater perspective.

Prepositioning. The prepositioning program provides combat troops with a supply of equipment and other resources for rapid response in the event of crisis. Prepositioned resources are replenished with follow-on resupply by airlift and sealift. To meet objectives for deployed US forces in the early days of conflict, the Air Force stores equipment and supplies in Europe, Southwest Asia, and the Pacific. With equipment and supplies prepositioned in the theaters, we can concentrate on movement of troops and their support equipment at the outbreak of the conflict. Our FY 90/91 Budget continues building the prepositioned stocks.

SOFTWARE MANAGEMENT

The acquisition process has seen a shift from software being part of the system to a situation where software is a system in and of itself. Fielding a weapon system on time, within cost, and in compliance with operational requirements, demands a thorough, comprehensive application of software management principles. In 1950, software had no influence on weapon system design about 50 percent of the time. Today, however, the B-1B has over a million instructions for the operational flight program alone.

We have a critical shortfall of people qualified in "software engineering." We are not alone in this people problem. Educators estimate that by 1990, there will be a national shortage of one million software engineers. The Air Force is aggressively attacking this problem from several angles. At the very top, we are sending our general officers and senior civilians through an awareness and insight course. We are establishing a software management group in the Headquarters.

We are demanding the use of software management indicators in conjunction with the acquisition of new systems, and we are establishing centers of software expertise for the support and maintenance of software embedded in weapon systems after they have been deployed. We support and manage, for the Department of Defense, a Software Engineering Institute at Carnegie-Mellon University. Two major tasks for the Institute are to work with civilian institutions to establish graduate and undergraduate programs for educating software engineers, and to assist us in inserting software productivity tools and development environments into the way we do business. The Air Force also manages the Software Technology for Adaptable, Reliable Systems (STARS) program. The objective of this program, which has already awarded three major contracts, is to develop methods and techniques for improving software productivity by a factor of 10.

MILITARY CONSTRUCTION PROGRAM

The Military Construction (MILCON) Program for FY 90/91 supports new missions and readiness, as well as limited quality-of-life and workplace improvements. MILCON is categorized as either New Mission or Current Mission. New Mission MILCON supports must-pay weapon system beddowns, force structure changes, and force sustainability and is considered to be direct mission support funding. Current Mission MILCON attempts to revitalize the existing physical plant through upgrade or replacement of facilities.

The need for reasonable growth to build better facilities and improve productivity remains as an issue. The Air Force's MILCON appropriations have not been sufficient in recent years. Many of our existing facilities are becoming obsolete. From FY 83 to FY 86 our MILCON program averaged about $1.5 billion annually. For FY 87, 88, and 89, our annual program was reduced to $1.2 billion. Our FY 90/91 MILCON request is for $1.4 billion: ($870 million in new mission and $525 million in current mission) in FY 90, and $1.6 billion in FY 91 ($880 million in new mission and $628 million in current mission). These levels provide limited funding for capital investment projects critical to readiness and the retention of quality people (200 year replacement cycle).

AIR BASE OPERABILITY

Historically, our air bases have been considered sanctuaries from which we could operate with minimal interference from the Soviets. However, with recent improvements in Soviet air, missile, chemical, and conventional capabilities, this is no longer the case. US airpower must have the capability to survive enemy attacks and continue to generate combat sorties. The readiness and sustainability of the air base is vital to this goal.

The Air Base Operability Program consists of complementary measures that will minimize damage by actively defending against the air and ground threat, increase our ability to survive by providing passive defensive measures, enhance our recovery capabilities critical to sortie generation, ensure our abilities to continue combat sortie generation, and provide for the continued support needed to operate our air bases.

These efforts leverage investments in readiness, sustainability, modernization, and force structure. The Air Base Operability program draws upon funding from many appropriations, as well as North Atlantic Treaty Organization (NATO) infrastructure funding, host nation, and other Service support. CONSTANT DEMO, an exercise to test the effectiveness of our plans and procedures, is scheduled in May-June 1991 at Bitburg Air Base, West Germany. The funding requested in FY 90/91 continues composite air base operability programs essential to theater combat operations.

AIR BASE GROUND DEFENSE

Intelligence sources have identified a wide spectrum of ground threats to our air bases. Of particular concern is the threat posed by special operations forces, saboteurs, and terrorists. In addition, some bases could expect attack by airborne, air assault, and air-land units. The Air Force developed operational tactics to counter these threats. The Air Base Ground Defense (ABGD) Program provides resources and training necessary to implement this doctrine.

The 22 May 1984 Chief of Staff of the Air Force/Chief of Staff of the Army Memorandum of Agreement contains two initiatives directly impacting the ABGD Program. One tasks the Army with providing ABGD beyond the base boundary, while the Air Force retains internal (on-base) defense responsibility as well as operational control over the joint defense force. The other initiative tasks the Army with providing ground combat training to Air Force ground defense forces.

HOST NATION SUPPORT

Host Nation Support (HNS) includes those services that allied nations provide to US forces deployed in support of overseas defense commitments. The goal for HNS is to ensure the availability of critical wartime support for forward-deployed and reinforcing US forces without further straining US mobility and support resources. HNS enhances combat readiness by reducing the requirement for deployment of US support units, allowing those units to be used in other critical areas.

Reasonably assured HNS complements and increases our combat capability through allied involvement and burdensharing. The Air Force objective is to use HNS to reduce present documented shortfalls in manpower. However, NATO Central Region HNS must not preclude the need for US manpower requirements for worldwide deployment. The sum of the reasonably assured HNS, plus the capability of US support units, must equal or exceed the total manpower requirement. Reasonably assured HNS requires the host nation's resources to be fully manned, trained, equipped, exercised, successfully evaluated, and included in contingency plans. Until these criteria are met, HNS should be considered a risk reduction measure.

COLLOCATED OPERATING BASES

The Collocated Operating Bases (COB) Program was developed to provide beddowns for CONUS-based European augmentation forces. COBs are allied military bases with excess capacity earmarked for use in wartime by US reinforcements. The United States Air Forces, Europe (USAFE) has identified over 70 COBs for FY 90/91. The number may vary as negotiations with NATO allies continue and force structure is adjusted to meet the threat.

USAFE has determined the minimum essential facilities (MEF) for operations at each COB to be adequate aircraft parking (not necessarily dispersed) and storage for 7 days of POL and munitions. Other essential operating facilities and airfield operability measures are also required, but MEF will permit combat operations from the COBs.

Funding for MEF comes from the Air Force budget and the NATO Infrastructure Fund. From 1978 to 1984, we provided approximately $43 million of MILCON funds for prefinancing MEF, and NATO funding totaled approximately $83 million of COB upgrades. In markups since 1984, the US emphasized the need to pursue NATO funding vice prefinancing, and NATO has made important progress. The NATO Infrastructure Program for 1985 through 1990 significantly increased the funding for support facilities and protective shelters.

MEDICAL WAR READINESS

The Air Force Medical Service mission is to ensure maximum wartime readiness by developing and operating a comprehensive, community-based health care system. We maintain the health and morale of Air Force members by providing or arranging timely, quality medical service for all active-duty members, their families, and other beneficiaries. During contingencies, this health care system must rapidly expand, mobilize, and deploy to provide medical support for Air Force operations worldwide.

The Air Force health care system provides critical mission support through: (1) health care services and programs for prevention and treatment of illness and injury and maintaining the health of the combat and support forces around the world, (2) the maintenance of a quality health system capable of structured expansion to accommodate wartime casualties, (3) health care services to sustain the force through its positive impact on recruiting and retention, and (4) research designed to eliminate or reduce the health hazards which would degrade military readiness.

The Air Force Medical Service has made substantial improvements in theater medical capability. An aggressive WRM procurement program allowed us to purchase twenty-four 500 bed contingency hospitals, sixteen of which have been delivered to the European and Pacific theaters. All theaters are receiving increased stocks of medical materiel for their war reserve programs. The funding profile projected through FY 90-94 allows us to attain 72.6 percent of our materiel requirements.

HNS of Medical Operations in Wartime. In conjunction with the unified commands, Air Force components obtain facilities from our allies and host nations for the prepositioning of medical sites. Buildings are modified as contingency hospitals at substantial savings over new construction. In Europe, we have obtained buildings on five Royal Air Force bases within the United Kingdom, two sites with buildings in the Federal Republic of Germany, a site for one hospital in Luxembourg, and a site for one hospital in Denmark. In the Pacific, the Republic of Korea provided land and a hospital has been completed at Kimhae.

Negotiations continue to obtain HNS to preposition medical structures at or near the site of employment. Unfortunately, because of national, economic, and political sensitivities, the process is slow and the outlook is not optimistic. When HNS is not forthcoming, our commitment to enhanced medical readiness can only be achieved by building medical WRM warehouses through the MILCON program.

FORCE PROJECTION

The ability to project and sustain combat forces throughout the world forms a cornerstone of American military strategy. The visible means and will to project significant military power can deter actions hostile to our interests. Timely force projection can also be the stabilizing factor in preventing small crises from escalating into larger conflicts.

The key to effective force projection lies in achieving a balance among airlift, sealift, and prepositioning programs. Airlift uniquely contributes to this balance with speed, range, and flexibility. Strategic airlift aircraft are used to deploy forces from their stateside locations over long distances to the theater. Theater airlift aircraft provide for combat employment and aerial resupply of engaged forces in or near the battle area.

Aerial refueling and combat rescue are specialized Air Force missions. Air refueling increases the nation's flexibility to respond in a timely manner across the spectrum of conflict and combat rescue forces enhance the survivability of aircrew members downed in future conflicts.

AIRLIFT MASTER PLAN

The USAF Airlift Master Plan (AMP) provides the basis for long-range planning to manage and employ airlift assets to support our military strategy. The plan defines an airlift force structure that balances validated requirements, operating costs, manpower, force stabilization, and force modernization. The AMP focuses on the need to eliminate airlift shortfalls and modernize airlift forces.

In 1981, the Congressionally Mandated Mobility Study (CMMS) recommended, and the Department of Defense (DOD) Defense Guidance was updated to reflect, 66 million ton-miles per day (MTM/D) as a fiscally attainable strategic airlift goal. We currently have the funded capability to project 46 MTM/D and the AMP has an innovative modernization and acquisition program geared to reach the 66 MTM/D goal by the year 2000. Achieving this plateau, however, does not imply that the nation's airlift needs will have been totally satisfied. Sixty-six MTM/D is but an interim objective dictated by fiscal realities. The actual requirement is significantly higher--a fact that is supported by the results of the CMMS and an ongoing Joint Chiefs of Staff (JCS) study known as the Revised Intertheater Mobility Study.

The mobility requirements most difficult to quantify are those for theater airlift. Some of these needs, such as the forward movement of cargo and passengers from major sea and air ports, can be reasonably estimated. A large portion of the requirement, however, is driven by the uncertainty of wartime events and the tactical situation. The Office of the Secretary of Defense-led Worldwide Intratheater Mobility Study is a landmark effort that goes a long way towards defining theater airlift goals. Results indicate a need to increase our long-term intratheater capability by 100 percent.

The Airlift Total Force Plan (ATFP) follows as a natural extension of the AMP. The ATFP allocates the recommended AMP force structure among Active and Reserve forces to limit active duty manpower requirements, modernize the fleet, and provide a time-phased acquisition and transfer strategy. This plan synthesizes national airlift issues, focusing on congressional guidance to integrate and modernize the Air Reserve Forces. The ATFP maximizes wartime capability while providing sufficient peacetime capability.

A new development in our airlift planning process is the role performed by the US Transportation Command (USTRANSCOM). This unified command became fully operational in October of 1988 and is responsible for the wartime management of all transportation assets. USTRANSCOM is now developing the procedures and procuring the equipment to integrate the surface, maritime, and airlift planning functions. We are working closely with USTRANSCOM in defining command relationships and identifying the information they need to effectively manage airlift assets.

AIRLIFT ENHANCEMENTS

C-17. The C-17 is the Air Force's top-priority mobility program. The aircraft's unique capabilities make it the key to reducing both strategic and theater airlift shortfalls. Although comparable in size to the C-141, the air-refuelable C-17 will deliver twice the payload over intercontinental distances. It is designed for routine short-field landings and is capable of using unpaved surfaces. During ground operations, the aircraft's short turning radius and ability to back up permit maximum use of available ramp space and reduce airfield saturation. Essentially, all airfields now available to the C-130 will be open to the C-17.

The C-17 was designed around mission requirements and inputs from the using services and theater commanders. It will accommodate all sizes of cargo up to and including the outsize items currently restricted to the C-5. This needed capability gives the ground commander the ability to reposition even the largest items of equipment around the combat theater. Also designed into the aircraft is the capability to use any of three delivery modes: airland, airdrop, or the low-altitude parachute extraction system (LAPES). In conjunction with the Army, we are reviewing our doctrine and developing concepts of operations that reflect the flexibility inherent in the C-17.

The C-17 program is executed under a fixed-price incentive contract with the Douglas Aircraft Company in Long Beach, California. The manufacturer guarantees specific aircraft and subsystem performance parameters as part of the unique warranty provisions in the contract. An Air Force conducted Program Readiness Review completed in June of 1988 determined that the contractor was ready to enter low-rate initial production. The Air Force requested, and the Defense Acquisition Board (DAB) subsequently approved, the procurement of six aircraft in FY 90. The DAB also agreed to the release of long lead funds to buy 10 C-17s in FY 91. The first C-17 flight is scheduled in 1990.

The Air Force plans to purchase 210 C-17s between FY 88 and FY 98. The basing plan includes five active duty, two Guard, and two Reserve locations. Initial operational capability (IOC) for the first 12 aircraft is scheduled for FY 92 at Charleston AFB, South Carolina.

Airlift Defensive Systems (ADS). The protection of the nation's limited airlift assets as they perform their global mission presents an area of concern to the Air Force. The proliferation of shoulder-fired surface-to-air missiles among terrorists and guerrilla forces places airlift aircraft in jeopardy even in a peacetime environment. During wartime, necessity dictates that we operate in a threatening environment. The ADS Program responds to the need for an integrated, common architecture defensive suite that provides protection for airlift aircraft. Research and development on the current effort began in FY 89 and production for the C-17 should begin in FY 95. The C-130, with a simpler system, should begin modification in FY 92.

C-27A. The C-27A program was established to procure a new light utility, short-take-off-and-landing (STOL) aircraft for US Southern Command (USSOUTHCOM). The C-27A remains the number one Air Force requirement on USSOUTHCOM's FY 90-94 overall list of priorities. We intend to purchase 10 off-the-shelf STOL aircraft to meet this need. Procurement activities begin in FY 90 and first aircraft delivery is expected by the end of FY 91.

Civil Reserve Air Fleet (CRAF). The CRAF is a group of US civil aircraft committed to augment the Military Airlift Command (MAC) in wartime. Those air carriers participating in the CRAF are contractually obligated to provide aircraft, crews, support personnel, and facilities to MAC under specific emergency conditions. The CRAF has been a key partner in the nation's defense since its inception in 1952.

Because of the CRAF's ability to move passengers, over 95 percent of our wartime strategic troop movement requirements are assigned to it. We are currently developing a related application of these aircraft to support aeromedical evacuation. A modification program that adds litter support hardware to existing civil aircraft goes a long way towards satisfying shortfalls in strategic and domestic patient redistribution.

CRAF aircraft also provide nearly 25 percent of the wartime airlift of equipment and supplies. The CRAF Enhancement Program modifies existing wide-body passenger aircraft for use as cargo carriers during mobilization. Legislation which enables the Air Force to enter into these CRAF modification contracts is contained in Public Law 97-86. In the past we have found that this legislation is not broad enough to allow us to respond to the evolving needs of the airline industry. Accordingly, we are requesting that the law be amended to provide the Air Force greater flexibility in working with the civil air carriers to acquire and modify aircraft with military cargo and defense communications features.

This effort to include defensive features on the nation's commercial airlift fleet is in keeping with the recently revised National Airlift Policy. This policy prescribes a balanced approach to force projection, including a strong civil reserve air fleet. In support of this policy, the Air Force also intends to pursue multi-year contracting with air carriers for peacetime movement of military cargo and passengers as an incentive for the airlines to commit additional aircraft to the mobilization base. Contracts in past years have been on an annual basis.

60K Airlift Aircraft Cargo Loader. The 60K Loader is designed to handle all configurations of air cargo to include military and commercial pallets, airdrop platforms, container delivery system (CDS) loads, International Standard Organization (ISO) containers, and rolling stock. The 60K Loader will interface with all current and planned military and commercial cargo aircraft. The loader will be drive-on drive-off air transportable on the C-141, C-5, and C-17 cargo aircraft. This loader is critical to the rapid load/off-load of aircraft and assures minimum ground times for increased airlift capability in wartime surge scenarios.

MAC Command and Control (C^2) Support. The global nature of the airlift mission requires effective C^2. The present system, however, needs top-to-bottom improvements to make it as dynamic as current requirements. In general, deficiencies include inadequate secure communications, lack of automated data-processing equipment, and a shortage of deployable shelters. MAC is developing and implementing a number of solutions which ensure an integrated approach and will overcome specific deficiencies.

The majority of the individual C^2 upgrades will be fielded by FY 94. These upgrades include high-frequency anti-jam radio sets, ultra-high-frequency (UHF) satellite communications (SATCOM) capability, improved communications security, and information processing equipment. In addition to this equipment, MAC is also paying close attention to the personnel, procedures, and facilities required to form an integrated C^2 system.

AERIAL REFUELING

The capability to air refuel our combat and combat support aircraft contributes added flexibility to air power by extending our presence in the combat area, increasing the range of our forces, and allowing us to bypass troubled areas where overflight rights may be denied. This flexibility reduces our vulnerability to attack and allows the US to project forces worldwide.

Tanker Requirements. The Air Force needs substantially greater aerial refueling capability to support our contingency and operations plans than is available from the present fleet of KC-135 and KC-10 tanker aircraft. All KC-135s are required to support forces committed to the general nuclear war plan, the Single Integrated Operational Plan (SIOP). The KC-10 aircraft support deployment and employment of general purpose forces. However, since this requirement far exceeds the capability of the KC-10, a large number of KC-135s are assigned both SIOP and conventional war missions. This creates difficult allocation choices when conventional operations are accompanied by an increased SIOP readiness posture.

Tanker Enhancements. The KC-135R modernization program provides a 50-percent increase in fuel available for transfer compared to the basic KC-135A, due largely to the new F108 high-bypass turbofan engine. The program also updates 27 aircraft systems, including the landing gear, electrical system, and auxiliary power unit. Through FY 89 we have funded the modernization of 295 KC-135s and plan to retrofit the entire fleet of 636 aircraft. FY 90 funds will procure 24 modification kits. Four units have already converted and three others are scheduled for completion in FY 89. The KC-135R helps alleviate a serious tanker shortfall at less than one third the cost of a new aircraft with similar capabilities.

The last of 60 KC-10 tanker and cargo aircraft manufactured for the Air Force is the first modified to accept wing-mounted refueling pods. A total of 20 aircraft will be modified and 15 sets of pods procured. These pods allow the KC-10 to refuel simultaneously up to three aircraft equipped with the probe refueling system. This program is designed to improve interoperability with probe-equipped aircraft under the Air Force's charter as single tanker manager.

As these two programs illustrate, the Air Force is committed to improving its aerial refueling capabilities. Yet even when these enhancements are complete, we will remain unable to meet conventional force requirements while simultaneously supporting the SIOP. Meeting this shortfall will require the eventual procurement of a new KC-X tanker.

COMBAT RESCUE

As a result of the transfer of all H-53 helicopters to special operations and the phaseout of UH-1Ns and H-3s, Air Force combat rescue capability declined significantly over the past several years. The rescue force structure we are now developing reverses this trend. By adding the MH-60G to our combat rescue inventory, we dramatically increase our ability to recover aircrew members who are downed in any future conflict. The MH-60G will feature an aerial refueling capability, extended range tanks, precision low-level navigation, improved communications, and upgraded self-protection systems. Active, Reserve, and Guard forces are included in this rescue modernization program.

TACTICAL/THEATER FORCES

Our tactical air forces will maintain the high degree of readiness and capability we have built--with congressional support--over the past 8 years. This effort, however, is not without significant challenges.

The first challenge continues to be the threat posed by Soviet forces. Secretary General Mikhail Gorbachev's arms reduction statements notwithstanding, the Soviets have continued to introduce technologically-advanced aircraft, upgrade their air defense capabilities, and significantly improve their command and control (C^2) system.

The second challenge is one of a diminishing defense budget. To maintain a fully capable fighter force in an era of constrained funding, we will reduce our fighter force from 37 to 35 tactical fighter wing equivalents (TFWE) in FY 91. This reduced force will allow us to meet our national committments, but it is less than the 50 TFWEs necessary to achieve a reasonable assurance of success.

To partially offset the decreased force structure, we are developing modernization programs for current inventory aircraft to provide increased capability, maintainability, and service life. Additionally, we are establishing cost goals earlier in the acquisition process for the development of future systems. These goals are being applied not only to procurement costs but to operating and support costs as well. By using modification programs and cost control measures such as these, we are leveraging our investments, enabling us to field a ready and capable tactical force--despite a constrained budget.

SOVIET FORCE DEVELOPMENTS

The Soviets spend about 15 to 17 percent of their total gross national product (GNP) on defense. This outlay has not abated despite statements implying a shift in emphasis in the Soviet economy to a more consumer-oriented investment plan. The Soviet air forces continue to introduce more capable aircraft like the MiG-29 FULCRUM--the aircraft that gained such favor at the 1988 Farnborough Airshow. Even more sophisticated aircraft include the FOXHOUND and FLANKER B; both possess state-of-the-art avionics and armament systems giving the aircraft true look-down/shoot-down capability. These systems also employ improved munitions and are supported by sophisticated electronic combat and C^3 systems.

New tanks, infantry fighting vehicles, self-propelled artillery, and attack helicopters pose a significant Soviet and Warsaw Pact (WP) ground threat against the North Atlantic Treaty Organization (NATO). These modern weapon systems enable the WP to conduct rapid offensive operations with massive firepower. Soviet operational experience in Afghanistan has allowed them to test and operate new equipment and train people under actual field conditions.

The Soviets have deployed a formidable force of modern, tactical, surface-to-air missile systems and antiaircraft artillery, supported by a linked array of mobile and fixed radars. The SA-12, a new system currently being deployed, poses a major threat to tactical forces. It is mobile and improves Soviet ground forces' capability against low-flying US systems.

THE TACTICAL CHALLENGE

The most significant principle of warfare learned since World War I is the importance of air superiority to the conduct of effective combat operations. In today's arena, our tactical forces are opposed by numerically superior, sophisticated Soviet combat aircraft. To gain air superiority, we need trained, proficient aircrews, efficient C^3, reliable avionics, the correct munitions mix, and high-performance aircraft.

With air superiority achieved, our ground and air forces can fight and be reinforced free from disruption by enemy air attacks. Air Force aircraft in the air-to-surface role must evade or suppress enemy defenses and deliver concentrated, effective firepower in support of surface battles, day or night, when and where required by the theater commander. Precision-guided and standoff munitions can add to our forces' efficiency by substantially reducing the cost of destroying an opposing force in terms of sorties required and friendly losses.

To increase the effectiveness of US theater air forces, we must also disrupt enemy C^3 capability, provide real-time warning and control, and extend on-station time of our forces. Improvements in combat support, spares, and munitions have produced a more capable force. Today, our tactical fighter forces can generate almost 80 percent more combat sorties than in 1980. This improvement in capability serves as a force multiplier and helps offset the quantitative disparity between the Allied forces and those of the WP.

OPERATIONS IN SUPPORT OF GROUND FORCES

In the mid-1990s the AirLand Battle concept of operations will require Air Force assets to conduct missions along a fluid front to penetrate the Forward Edge of the Battle Area (FEBA). Those air operations in close proximity to friendly forces are referred to as Close Air Support (CAS). Battlefield Air Interdiction (BAI) refers to air operations against follow-on forces behind the FEBA capable of influencing future close operations. CAS and BAI operations are interdependent, requiring the Air Force to employ an aircraft capable of doing both missions equally well. The lethality of the threat expected in this scenario dictates a significant change in the type of aircraft required to perform these vital missions. Our current dedicated CAS/BAI aircraft, the A-7 and A-10, were designed to operate in relatively low-threat environments and will not survive at higher threat levels. Therefore, we have decided to modify 225 A-10s and 146 F-16s to enhance Air Force capability to conduct these missions more effectively until a follow-on CAS aircraft is selected and fielded.

The final A-10 replacement solution will come from the on-going efforts within the Department of Defense. The alternatives currently under consideration focus on modifying existing and/or production aircraft.

ARMS CONTROL AND TREATY RELATIONSHIPS AFFECTING THEATER FORCES

The Air Force strongly supports negotiations aimed at arms reduction agreements improving our national security. Arms control helps maintain the US deterrent, but it is not a substitute for US military preparedness.

The Intermediate-Range Nuclear Forces (INF) Treaty, which entered into force on 1 June 1988, has important implications for our theater forces. Ground Launched Cruise Missile (GLCM) deployments have stopped, and GLCM units in Europe will phase out by 1991. Removal of these assets increases the importance of our nuclear-capable, tactical aircraft for NATO's deterrent capability. At the same time, the Soviets will gradually eliminate their SS-20 force, removing the threat these missiles pose to NATO air bases and other installations. The drawdown in nuclear missiles underscores the current Soviet advantage in conventional weapons in the European theater.

During an address to the United Nations General Assembly on 7 December 1988, Secretary General Gorbachev stated the Soviet Union would begin a unilateral reduction in the disproportionate number of conventional forces currently facing NATO. This reduction is to include 500,000 troops, 10,000 main battle tanks, and 800 combat aircraft. If the proposed reductions actually take place, they would be welcomed as a first step toward conventional stability in Europe.

SPECIAL OPERATIONS FORCES (SOF)

Air Force Special Operations Forces (AFSOF) provide airlift and selective firepower for Army and Navy special warfare units. In conjunction with these forces, AFSOF conduct collective security, unconventional warfare, direct-action/strike missions, psychological operations, and contingency missions. Although many types of aerospace forces have application in special operations, the Air Force organizes, trains, and equips specific units to conduct special operations as their primary mission. These units are equipped with MC-130, AC-130, HC-130, EC-130, H-53, and H-60 aircraft.

In compliance with congressional guidance, implementation of major force program (MFP) 11 (special operations) is nearly complete. We are now taking steps to transfer to the Commander in Chief, US Special Operations Command (USSOCOM), authority over MFP 11 not later than the FY 92 Budget. In the interim, we continue to work closely with USSOCOM in developing and submitting appropriate budget proposals.

The 23rd Air Force, based at Hurlburt Field, Florida, serves as the Air Force component of USSOCOM. Units assigned to the 23rd Air Force are equipped with a variety of fixed- and rotary-wing assets. In addition to various modifications to enhance the reliability, maintainability, survivability, and combat capability of these existing aircraft, new SOF unique systems are being procured.

AC-130U. This is a development/procurement program which will replace 10 aging and difficult-to-support AC-130A gunships with 12 reliable and maintainable aircraft. The Air Force has purchased new C-130 airframes which are now being updated to the gunship configuration. Deliveries of these modernized gunships will begin in FY 92 to the active unit now assigned AC-130Hs. The H-model aircraft will transfer to the Air Force Reserve to replace the AC-130A.

MC-130H. The MC-130H Combat Talon II will be capable of long-range penetration into politically denied, sensitive, or hostile areas to infiltrate, exfiltrate, and resupply forces day or night in adverse weather conditions. The Air Force will purchase 24 aircraft through FY 90. Initial operational capability (IOC) is scheduled for the first quarter of FY 91 with four aircraft.

Rotary-Wing SOF Requirements. The Air Force will continue to fully support SOF rotary-wing airlift requirements and will complete modification of 41 H-53 aircraft to the MH-53J PAVE LOW III enhanced configuration by the end of FY 90.

TACTICAL AIRCRAFT SYSTEMS

Air Force global commitments, compounded by the size and lethality of Soviet air and ground forces, dictate a force size requirement for 50 TFWEs. However, because of fiscal constraints, we have elected to maintain a smaller but highly trained force.

The FY 90/91 Budget supports the actions we must take to modernize and get the maximum capability from our present fighter force. The Air Force plans to procure 186 tactical fighters per year (36 F-15Es and 150 F-16C/Ds). While this level of procurement precludes needed force structure expansion, it maintains a 35 TFWE force, permits modernization of our older aircraft, and responds to current fiscal realities.

The Air Reserve Component constitutes about one-third of the total tactical fighter force. These forces have demonstrated quick response and effectiveness when called on to augment the Active forces. Current and programmed modernization efforts ensure these forces will retain capabilities comparable to the Active units they augment.

Reserve and Guard units will re-equip with F-15s and F-16s to replace older, less capable F-4s. By the end of FY 89, there will be 17 Air National Guard/Air Force Reserve (ANG/AFR) units equipped with the F-16. Four additional conversions are scheduled for FY 90. Also, the remaining F-4s will continue to be modified with low-smoke engines and an AIM-9L/M capability to make them more survivable and lethal.

F-15. The F-15 has been operational for 14 years. A series of upgrades has enabled this aircraft to maintain its standing as the finest air-to-air fighter in the world. Further avionics improvements will extend its capability to counter the threats of the 1990s. Integration of the AIM-120A Advanced Medium Range Air-to-Air Missile (AMRAAM) will enable it to engage multiple targets, further enhancing its combat effectiveness in the air superiority mode.

F-15E. We are procuring the sophisticated F-15E Dual Role Fighter to complement the long-range, all-weather capability of our F-111 interdiction force. In addition to an expanded air-to-surface weapons capability (including Low Altitude Navigation and Targeting Infrared for Night [LANTIRN]), the F-15E retains its inherent air-to-air capabilities. The FY 90/91 Budget curtails the F-15E buy to 200 total aircraft.

F-16. The multi-role F-16C/D procurement in FY 90 will consist of 150 aircraft with numerous improvements over the original F-16A/B. Some of these improvements include a reconfigured cockpit, improved radar, more powerful engine, and increased computer capacity. The improvements will enable employment of advanced subsystems and ordnance, augmenting the already significant capabilities of the F-16.

The FY 89 Authorization Act contained conditional approval for a third F-16 MYP to begin in FY 90 and run through FY 93. The estimated savings for this third multi-year contract are $416.6 million, or 9.6 percent, compared to a series of annual contracts.

F-117A. The F-117A stealth fighter aircraft first flew in June 1981 and attained operational status 2 years later in October 1983. The aircraft is assigned to the 4450th Tactical Group at Nellis AFB, Nevada, and is based at Tonopah Test Range Airfield. Fifty-three aircraft have been delivered to the Air Force and six more are in production.

With the disclosure of the F-117A program, this mature system, which has enjoyed bipartisan congressional support since its inception, can now be fully integrated into operational plans in support of worldwide defense commitments. The system adds to the deterrent strength of US military forces.

Advanced Tactical Fighter (ATF). The ATF Program is the single most important element of our tactical force modernization effort. A follow-on to the F-15C/D, the ATF will be an air superiority fighter capable of performing counter-air operations in high-threat enemy airspace against current and projected Soviet fighters. With an effective first-look, first-kill capability, the ATF will be lethal, durable, and survivable in a high-threat and multiple-target environment. In addition, the ATF's improved supportability features will permit the high sortie rates necessary to dominate the air-to-air arena beyond the mid-1990s.

Previous demonstration/validation activities (prototype aircraft tests, avionics prototype, and testbeds, trade studies, etc) aimed at reducing risk and cost will culminate in an early FY 91 FSD decision.

A-12 Advanced Tactical Aircraft (ATA). The Air Force is actively supporting the Navy ATA development program and has programmed funds for the development and production of an Air Force variant for use in the deep-interdiction role. Threat analysis of potential targets and defensive systems shows that we need an interdiction aircraft with significantly improved capabilities by the turn of the century. The ATA will satisfy this need. Like the ATF, the A-12 will incorporate advanced materials and avionics, and possess highly reliable supportability features. The Air Force development program will support a timely procurement decision.

TACTICAL RECONNAISSANCE AND ENGAGEMENT SYSTEMS

Tactical Reconnaissance and Engagement Systems are a group of related programs designed to provide a comprehensive picture of the battlefield and allow theater commanders to engage targets in near real time. These complementary programs provide standoff and penetrating capability. Standoff programs include the Advanced Synthetic Aperture Radar System (ASARS II) to detect fixed targets and Joint Surveillance Target Attack Radar System (JSTARS) to detect moving targets. Standoff reconnaissance alone will not meet the needs of the theater commander for accurate, up-to-date information. The Follow-On Tactical Reconnaissance System (FOTRS) will help satisfy this information requirement by providing an electro-optical sensor suite configured for carriage on both manned and unmanned penetrating aircraft.

JSTARS is an Air Force/Army program to field a common radar and attack control system for the AirLand Battle. The JSTARS E-8A platform carries a multi-mode radar, processing equipment, controller stations, and C^2 interfaces. JSTARS will provide targeting information to C^2 centers for direction of attacks against the predicted positions of moving armored vehicles. JSTARS will be a key to the NATO FOFA initiative proposed by the Supreme Allied Commander, Europe. When used in FOFA operations, JSTARS will detect mobile enemy ground forces and provide targeting data to tactical forces. These attacks will help control enemy force rate of entry into the battle and prevent breakthrough of allied positions. Funding in the FY 90/91 Budget will continue the development effort and begin long lead procurement of initial JSTARS aircraft.

The TR-1 is the airborne platform for the Tactical Reconnaissance System (TRS). In the TRS configuration, the TR-1 carries the ASARS II imaging radar and other sensors to provide theater commanders with near real-time intelligence to support FOFA. Information is transmitted via digital data link to a hardened underground bunker that processes and sends reports to users in less than 15 minutes. The communications capability being built into the TRS will provide time-critical targeting information to the theater commanders allowing them to commit their assets against high-priority targets. In FY 90/91, we are requesting funding for continued TRS development, procurement, and initial spares to achieve an IOC in the early 1990s.

The FOTRS program is an umbrella concept consisting of two program elements and two associated projects for upgrading Air Force, Navy, and Marine tactical reconnaissance penetrating systems. In addition to sensor suites and unmanned aerial vehicles (UAV), the FOTRS program is developing a common and modular ground station to support Air Force, Marine, and Army reconnaissance requirements under the Joint Services Imagery Processing System project. FOTRS full-scale development (FSD) is continuing to meet a mid-1990's OC.

ELECTRONIC COMBAT

The Air Force Electronic Combat (EC) strategy continues to use a complementary mix of effective, affordable assets, providing the capability to detect a wide variety of threats and tailor the response. Today's major EC efforts are to develop integrated, reprogrammable systems emphasizing joint Service application.

The Air Force EC Master Plan and Roadmap (ECMP&R) integrates Air Force EC plans and programs into a unified statement of requirements for Active, Reserve, and Air National Guard components. The ECMP&R documents current EC capabilities, identifies limitations and deficiencies, and presents recommendations to establish a viable EC capability through the year 2010. The mix of EC systems outlined in the ECMP&R is based on the EC support needed for the total tactical force structure and the requirement for every combat-coded aircraft to have self-protection capability. To meet these needs, the Air Force is requesting development and procurement funds in FY 90/91 to build and sustain a complementary mix of destructive, disruptive, and self-protective EC systems. The Air Force requests funding in the FY 90/91 Budget for continued development and procurement of the following systems:

Anti-Radiation Missiles. Tacit Rainbow (AGM-136A) and HARM (AGM-88) form the heart of our destructive EC capability. HARM, employed by the F-4G and F-16C, provides a surgical, immediate strike capability against specific air defense threats. Tacit Rainbow will be employed at standoff ranges by conventional-role B-52s providing wide area coverage of threats over a period of time to support the ingress and egress of strike aircraft.

Advanced Radar Warning Receiver Competition Program. In December 1988, the Air Force chose the ALR-56M as the Advanced Radar Warning Receiver for future aircraft applications. The ALR-56M competed with the ALR-74 for selection as the system to provide warning information to RF-4 and production F-16C/D aircraft. The ALR-56M is a derivative of the ALR-56C, currently installed on the F-15C/D, that will provide warning of new and projected Soviet threat systems.

AN/ALQ-165 Airborne Self-Protection Jammer (ASPJ). The ASPJ is a joint Air Force/Navy development program for an internally-mounted electronic countermeasure (ECM) system with the Navy as lead Service. The ASPJ will provide self-protection to increase the survivability of F-16C/D, F-14, F/A-18, A-6E and AV-8B tactical aircraft. Development of associated support equipment, preplanned product improvement (P^3I), and aircraft integration is included in this program.

Integrated Electronic Warfare System (INEWS). INEWS is an Air Force-led, joint Air Force/Navy program to develop the self-protection suite of the 1990s and beyond for the ATF, ATA, and other advanced technology aircraft. The need for a sophisticated self-protection suite is driven by the technologically-advanced threat environment in which these aircraft will operate for their projected life cycles.

INEWS will provide aircrews timely and accurate threat warning and automatically apply optimum countermeasures. The self-protection threat response must be tailored to the specific mission requirement and threat environment. Effective implementation of INEWS demands a defensive capability fully integrated with other aircraft sensors and avionics to achieve total weapon system synergism. The INEWS will use common hardware and software modules to allow both tailoring to mission requirements and a reduction in cost. We are requesting development funds in FY 90/91 for continued work on this vital technology.

AIR-TO-SURFACE WEAPONS

The Air Force must procure a mix of quality air-to-surface munitions to achieve our combat objectives during the day, night, and in adverse weather. To this end, we are buying weapons that permit the use of standoff tactics early in the conflict when we must strike critical targets in the face of heavy air defenses. As the conflict continues and the enemy's defenses are drawn down, we can transition to more economical direct-attack tactics. We must procure and stockpile sufficient quantities of air-to-surface weapons to sustain our forces in case of supply disruption or until the industrial base can match consumption. The FY 90/91 Budget is designed to move us toward this goal.

Dispenser Munitions. The Air Force is developing and acquiring a series of new dispenser munitions; the Combined Effects Munition (CEM) is in procurement while the Direct Airfield Attack Combined Munition (DAACM) and the Sensor Fuzed Weapon (SFW) are under development. Each of these systems consists of submunitions dispensed from the Tactical Munitions Dispenser (TMD).

CEM consists of the TMD packaged with 202 unguided bomblets. It is a direct-overflight area weapon designed to attack light-to-medium armor, vehicles, and personnel. The bomblet contains a shaped charge for armor, blast fragmentation for softer targets and personnel, and an incendiary capability. The Air Force is requesting funding in FY 90/91 to procure approximately 22,000 weapons.

DAACM began development in FY 86 and consists of the TMD packaged with 8 Bomb Kinetic Energy Penetrators for effective runway cratering and 24 British-developed, HB-876 area denial mines to impede runway repair operations. The weapon will provide direct-attack capability against runways and is planned as a follow-on to the French-built Durandal airfield attack munition. FSD begins in FY 89 with low-rate initial production scheduled for FY 92. The FY 90/91 Budget request is for continued development funds.

SFW FSD continues through FY 90 with production commencing in FY 91. The combination of 40 Skeet warheads carried by 10 submunitions in a TMD forms the SFW. The SFW fills an existing need for a multiple-kills-per-pass weapon that can defeat armor such as tanks. SFW is also effective against light armored vehicles, trucks, and air defense units.

AGM-65D&G Imaging Infrared (IIR) Maverick. The IIR Maverick Program was established to expand the proven Maverick employment envelope to include night and adverse-weather conditions against a broader spectrum of targets. The latest Air Force Maverick employs an IIR seeker and either a 125-pound, shaped-charge warhead (AGM-65D) or a 300-pound penetrating blast fragmentation warhead (AGM-65G). It provides a high, single-shot probability-of-kill against CAS, interdiction, and defense suppression targets. The inventory also includes the television-guided AGM-65A and AGM-65B.

We are requesting funding in FY 90 to procure 2,270 missiles and spares via a three-year contract (FY 90-92), bringing total acquisition (Air Force and Navy) up to 2,830 missiles per year.

AIR-TO-AIR WEAPONS

The Soviets are enhancing their already substantial forces with the highly maneuverable and technologically sophisticated MiG-29 and Su-27 fighters. Given this threat, our fighters must employ effective air-to-air weapons to gain and maintain air superiority.

AIM-7 and AIM-9. Today, the Air Force and Navy weapons for medium- and short-range air-to-air combat are the SPARROW (AIM-7) and SIDEWINDER (AIM-9), respectively. The final procurement for both missiles takes place in FY 89. The AIM-7M and AIM-9M are the most recent versions of the missiles. The semiactive, radar-guided AIM-7M is designed to operate in all types of weather and against various ECM. The AIM-9M, an Infra-Red guided missile, can acquire and track targets in a high IR-cluttered environment. Through the Air Force's self-defense aircraft modification program, AIM-9L/Ms will be carried on the F-4, F-111, A-7, and A-10.

AIM-120A Advanced Medium Range Air-to-Air Missile (AMRAAM). To retain the superior characteristics of the US fighter force, we require a new family of air-to-air missiles to provide improved flexibility, range, and lethality. This requirement includes the capability to launch at a target and maneuver to evade or engage another target while the launched missile completes the attack, independent of radar and avionics on board the aircraft. The AMRAAM will have this capability and is our number one tactical weapon priority. AMRAAM will be used by the Air Force, Navy, and our NATO allies. Compared to the current Sparrow, AMRAAM is a major advance in radar missile capability. The Sparrow is a semiactive radar missile that must be guided continuously to a single target. Consequently, an aircrew is particularly vulnerable during a long-range attack when the aircraft radar must be fixed on the target for an extended time. The AMRAAM, however, is an active radar missile providing the aircrew a critical launch and maneuver capability, reducing risk from enemy fire.

AMRAAM Development, Test and Evaluation/Initial Operational Test and Evaluation on the F-14, F-15, F-16, and F-18 aircraft continued in FY 88 and early FY 89 with a cumulative success rate better than ever attained by a complex air-to-air missile. Flight testing will conclude in mid-CY 89, ensuring maximum information will be available for the full-rate production decision in late-FY 89.

Advanced Short-Range Air-to-Air Missile (ASRAAM). The ASRAAM is being developed by West Germany, Norway, and the United Kingdom. Faster and more maneuverable, the ASRAAM will have a significantly better acquisition range than the current AIM-9, the missile it is intended to replace. Under the provisions of the 1980 Family of Advanced Air-to-Air Missile Systems Memorandum of Understanding, the US will receive ASRAAM technical and manufacturing data if we decide to co-assemble or dual-produce the missile. That decision will be based on missile cost, schedule, and operational suitability. The US currently plans to carry the ASRAAM on the F-14, F-15, F-16, F/A-18, ATA, and ATF aircraft.

CHEMICAL WARFARE

The Air Force requirement for Chemical Warfare Defense (CWD) is based on the vulnerability of our forces to the formidable Soviet offensive chemical warfare capability. In FY 77, we began large-scale procurement of CWD equipment and recurring training to provide a capability to survive and fight during a chemical attack.

We need congressional support across the spectrum of the CWD program. In the past, Congress has supported individual protection efforts (masks, suits, etc.) but did not begin to support the more costly collective protection (CP) programs until FY 85 and FY 86. The use of chemical weapons in the Iran/Iraq war has shown the international taboo against the use of such weapons is no longer completely effective. Reported chemical weapons development in Third World countries further destabilize attempts to strengthen a ban on chemical weapons use.

The Air Force must plan to defend against the effects of chemical warfare and also be able to retaliate in kind. Current defensive protective gear provides adequate personal protection against known chemical agents, but causes severe problems such as induced heat stress, restricted movement and vision, and degraded communications. Some tasks, already difficult under combat conditions, become almost impossible, and many simple tasks take longer, resulting in fewer aircraft sorties. Sustained operations are further limited by the lack of CP facilities where personnel can rest, eat, and sleep without wearing protective gear. The FY 90/91 CWD Program funding request continues the development and procurement of critically-needed equipment and systems.

BIGEYE. The Air Force does not possess a credible deterrent chemical weapon. While we do not condone the proliferation or use of chemical weapons, it is imperative that we upgrade our outdated and cumbersome unitary weapon stockpile. Our lack of an effective deterrent provides the Soviets with a powerful incentive to use chemical weapons. The BIGEYE binary munition gives the US the persistent chemical agent, deep-attack capability we now lack.

TACTICAL COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE (C^3I)

C^3I is vital to our commanders' success on the battlefield. Recent actual combat experience as well as field training exercises show that jam-resistant, air-to-air and air-to-surface ultra-high-frequency (UHF) and very-high-frequency (VHF) voice communications are essential for effective C^3.

HAVE SYNC. The Air Force HAVE SYNC program is in FSD with a contract completion date of May 1989. The program will field a form-fit ECCM replacement for the AN/ARC-186 airborne VHF radio. The HAVE SYNC (formerly known as Air Force SINCGARS) will be interoperable with the Army-developed SINCGARS-V ground radio and with any other radios based on the SINCGARS-V waveform.

Modular Control Equipment (MCE). The MCE program will replace the aging and unsupportable 407L C^3 equipment developed in the 1960s. MCE provides C^3 vans at control and reporting centers (CRC) and forward air control posts (FACP) assigned to the Active and Air National Guard Tactical Air Control System (TACS). It will provide state-of-the-art computer processing and display equipment capable of rapid air and ground deployment to support defensive and offensive tactical air operations worldwide.

E-3 Airborne Warning and Control System (AWACS) Improvements. The E-3 AWACS has clearly demonstrated its importance as a surveillance, warning, and battle management system, as well as an instrument of national policy, since it was fielded in 1977. The E-3 will remain the Air Force's premier worldwide deployable airborne surveillance and C^3 system for tactical and strategic missions well into the 21st century. The AWACS improvements program will maintain the E-3 as a survivable system capable of meeting the changing threat worldwide. We are cooperatively developing an electronic support measures (ESM) system with NATO. ESM will provide US and NATO E-3s with a passive detection, location, and identification capability for airborne, shipborne, and ground-based emitters. The Radar System Improvement Program (RSIP) will restore AWACS radar detection performance against current and future lower radar cross section Soviet fighters projected into the late 1990s. RSIP will also double cruise missile detection range and provide electronic counter-countermeasures (ECCM), reliability, maintainability, and man-machine interface improvements.

Intelligence. Two key intelligence initiatives, SENTINEL BYTE and the Joint Tactical Fusion Program, promise to provide aircrews and operational commanders perishable intelligence information using current data processing technology. SENTINEL BYTE incorporates microcomputers into Tactical Fighter Wing operations and will feed intelligence directly into automated mission planning systems. SENTINEL BYTE is operational at 12 bases. The Joint Tactical Fusion Program will provide commanders with a picture that correlates all available intelligence information. It responds to Congressional direction for a joint Army and Air Force effort to develop a common view of the battlefield.

SPACE

The Air Force recently completed an extensive review of its role in space. Based on that review, the Air Force has designed and issued a policy to serve Department of Defense (DOD) needs in space.

Successful operations in space will have a decisive influence on future terrestrial conflict. Therefore, Air Force doctrine will reflect the integration of spacepower into the basic roles and missions of the Air Force.

Space support, force enhancement, space control, and force application are the critical elements of our Air Force Space Policy. To do these things, the Air Force must achieve assured mission capability--the ability to conduct operations in space at all times.

SPACE SUPPORT

Space support activities involve launching, deploying, maintaining and controlling while in orbit, and recovering space vehicles, if required. Over the years, the Air Force has made a significant investment in space launch and support infrastructure and personnel, and we maintain the highly specialized corporate expertise required for space operations. This investment, unique within DOD, constitutes a pivotal element of the national security space sector.

The successful launches of the Discovery and Atlantis were important events in this nation's space launch recovery. The year 1988 was a revalidation for our existing expendable launch systems, too. We had successful launches of all our existing DOD boosters: Atlas, Scout, Delta, and Titan. In September, we launched the first of our converted Titan II space launch vehicles (formerly elements of our strategic missile force) from Vandenberg AFB, California. The Titan II takes its place beside our other boosters in assuring access to space for our critical national security payloads.

With these successful launches, the DOD space program is again on track. The boosters and satellites we have included in our budget are absolutely essential to ensure the critical national support provided by space-based assets.

Our existing inventory of boosters will be used to replenish on-orbit assets. However, our space launch recovery has been complicated by the May 1988 accident at the Nevada plant, which produces ammonium perchlorate (AP), an essential ingredient in the manufacture of solid rocket motor propellant used to launch the shuttle, Delta II, Titan 34D, and Titan IV. Although flights in the near term are unaffected by the shortage of AP, the impact on launches over the next few years is still being determined. The Air Force is the lead Service in DOD for resolving problems created by the loss of AP capacity and in rebuilding our AP manufacturing capability.

In early 1989, the Delta II began launching Navstar Global Positioning System (GPS) satellites previously manifested on the shuttle. The Titan IV will also be ready for launch in 1989. The Titan IV will succeed the Titan 34D as our heaviest unmanned vehicle. In 1985 Congress approved the Air Force request for the Titan IV as a complementary expendable launch vehicle to the shuttle. Air Force foresight and congressional support for this vehicle reduced launch recovery time for our shuttle-class payloads by a full 2 years. Further, the congressionally-approved increase in Titan IV procurement to 23 vehicles will offset some of the reduced shuttle availability following the Challenger accident.

We have concluded a competition for a new medium-launch vehicle (MLV) to launch Defense Satellite Communications System (DSCS) satellites. A version of the proven Atlas Centaur launch vehicle, the Atlas II, was selected to fulfill the task. The military, the National Aeronautics and Space Administration (NASA), and the commercial launch industry will benefit significantly from the approaches used in this booster acquisition. For example, contractor-managed but government-approved controls to reduce the level of government technical involvement without loss of reliability will move the procurement process for these boosters closer to a commercially-offered launch capability.

Other vital aspects to the space launch recovery plan include additional pads and pad capacity on both coasts. Launch Complex 40 at Cape Canaveral will be converted to a dual-capable launch pad that will support DOD Titan IV operations as well as the commercial Titan III. The Air Force needs a second Titan IV pad at Vandenberg AFB with Centaur upper stage capability to meet increased launch requirements in 1996 and beyond. Additionally, the increased launch rates beginning in the early 1990s require more production capacity for Titan IV payload fairings and solid rocket motors. Launch pads and production augmentation will increase Titan IV launch capacity to 8 to 10 missions per year and permit support of some NASA-funded planetary (or national science) mission requirements, along with DOD needs.

We have scheduled more than 20 space launches in 1989. This is more than double the 1988 rate (10 launches). Even at this planned peak launch rate, we will not be able to launch all of the backlog of satellites resulting from the Challenger and Titan accidents until at least 1992.

Advanced Launch System (ALS). The long-term launch challenge for space systems is assured mission capability. Providing operational commanders with the assured support from space systems will require a balance of elements. They are survivability, flexibility, responsiveness, logistics supportability, and strong research and technology programs.

The space boosters being brought into the inventory meet current performance requirements, but we still need improvements to meet future needs. Areas that will lead to better launch support to meet US security requirements are: increased capacity; increased reliability; responsiveness to provide faster call up; flexibility in satellite assignments and launch vehicle integration; resilience to accidents and other threats; and lower launch costs.

ALS, a joint DOD and NASA program, has been identified to meet future launch needs. Some have erroneously considered ALS to be a Strategic Defense Initiative (SDI) heavy launch vehicle requirement only. On the contrary, ALS represents the future for our national space launch capability. Three important objectives have been outlined for ALS. First, it must provide the required launch capability to enable an SDI deployment decision. Second, ALS must develop technologies, system designs, and operational concepts for a family of responsive launch vehicles. Third, the ALS program will develop near-term technology spin-offs to improve our existing launch systems. Expendable launch vehicle and shuttle reliability and performance will benefit from applicable ALS technology achievements. Underlying these three objectives is the key goal of significantly reducing the cost to deliver payloads to orbit.

FORCE ENHANCEMENT

The Air Force will continue to acquire and operate space-based systems for navigation, meteorology, communications, tactical warning/attack assessment (TW/AA), and wide-area surveillance. The Air Force supports the multi-Service approach to conducting space surveillance and providing mission-oriented, space-based communications. We have developed a unique infrastructure for the acquisition and operation of multi-user systems such as GPS, Defense Meteorological Satellite Program (DMSP), and Milstar.

Navigation. The Navstar GPS is a space-based, navigation system designed to provide military users with precise time and worldwide, all-weather, three-dimensional position and velocity information. GPS will provide a common navigation grid for combined operations, improve the probability of target acquisition, enable precise low-level ingress/egress, allow flexible routing, and increase weapons-delivery accuracy. These features will enhance the force effectiveness and survivability of many US weapon systems. A complementary mode will also be provided for worldwide civil use.

The firm, fixed-price, multi-year contract for 28 GPS satellites including research and development (R&D) satellites, awarded in May 1983, is on schedule. Launches began in 1989, and will lead to a planned 24-hour-per-day worldwide GPS capability in 1993. The Delta II will be used to launch these spacecraft.

Meteorology. The DMSP, a joint-Service program with the Air Force as executive agent, is DOD's most important source of global weather data. DMSP collects and disseminates global visible and infrared cloud data and other meteorological, oceanographic, and solar-geophysical data. Timely data are supplied to Air Force Global Weather Central, the Navy Fleet Numerical Oceanography Center, and deployed tactical receiving terminals worldwide. The Block 5D-2 satellites are currently launched on refurbished Atlas Es and will be launched by refurbished Titan IIs in the early 1990s.

Multi-year production contracts have proven to be the best and most cost-effective approach for stable operational satellite programs. DMSP Block 5D-2 satellites were purchased through multi-year procurement (MYP) contracts, resulting in savings of $58.2 million or 19.2 percent over an annual buy. A similar MYP contract will be used for the procurement of the last five Block 5D-3 spacecraft which will fly through the year 2000.

Communications. Deterrence of nuclear conflict requires that a potential aggressor perceives that any attack will result in effective retaliation. Communications among our tactical warning sensors, command authorities, and nuclear forces are necessary for executing a retaliatory strike, and are therefore an important element in our strategic deterrent.

In the event deterrence fails, survivable command, control, and communications (C^3) is necessary to verify the attack, estimate its size, and determine its intent. Direct communication between the National Command Authorities and tactical warning systems provides additional time for response and reduces the chance of catastrophic error.

The Air Force Satellite Communications (AFSATCOM) System provides command and control of our strategic forces. AFSATCOM consists of aircraft terminals, ground terminals, and communications packages on several satellites. The AFSATCOM Single Integrated Operational Plan (SIOP) role will be replaced by Milstar and Defense Satellite Communications System (DSCS) in the mid-1990s. AFSATCOM will continue to support contingency/crisis operations for the foreseeable future.

We began full-scale development of Milstar in 1983 to provide improved, survivable, and jam-resistant communications in the extremely-high-frequency (EHF) range. The Milstar Program, a joint-Service effort, is developing and acquiring satellites, mission control equipment, and terminals for a variety of platforms. The Air Force has system development responsibility and our FY 90/91 Budget includes funding for the program.

The DSCS provides super-high-frequency (SHF) satellite communications for secure voice, high volume, and high data rate transmissions. DSCS provides communications for worldwide military C^3, crisis management, and presidential and diplomatic traffic.

DSCS III, the latest DSCS satellite design, provides added flexibility through electromagnetic pulse hardening and increased jam-resistance. DSCS III supports strategic forces by providing an ultra-high-frequency (UHF)/SHF capability for emergency action message dissemination and force execution through an AFSATCOM Single Channel Transponder. The fixed-price, multi-year contract awarded in 1985 for seven DSCS III satellites is on schedule.

Tactical Warning/Attack Assessment (TW/AA). The Defense Support Program (DSP), the nation's satellite early warning system, provides TW/AA of a ballistic missile attack as well as surveillance of space launches and nuclear detonations in near real time. The DSP system consists of satellites in geostationary orbits, fixed and mobile ground processing stations, and a ground communications network.

DSP is currently in the second year of a MYP. The validated savings from the multi-year contract, awarded in July 1987, are $455.5 million or 27.9 percent less than an annual buy contract.

TW/AA is also provided by the Nuclear Detonation Detection System sensors carried on the GPS spacecraft. These sensors will provide highly survivable and accurate location fixes and yield readings, in near real time, to military and civilian users for strike, damage, and attack assessments; force management; and test ban monitoring.

Wide-Area Surveillance. Satellite early warning capabilities are designed to warn of Soviet space and missile launches, prevent surprise attack, and allow the US to determine the appropriate response to Soviet actions. Space surveillance systems are designed to track, categorize, and provide important data used to assess the capabilities of all space objects.

The Air Force joint space-based radar efforts have progressed and are now centered around concept exploration studies conducted to satisfy the needs described in the Joint Chiefs of Staff (JCS)-approved Multi-command Required Operational Capabilities (MROC) for wide-area surveillance, tracking, and targeting. These studies, which included participation by the Canadians, were funded jointly by the Air Force, Navy, and the Defense Support

Projects Office (DSPO). USSPACECOMMAND also provided a corresponding Mission Need Statement (MNS) for a space-based wide-area surveillance targeting and tracking (WAST^3) system which was approved by the Joint Requirements Oversight Council (JROC). The Defense Acquisition Board (DAB) approved a concept exploration decision for WAST^3 and directed a DAB demonstration/validation review in December 1989.

SPACE CONTROL

Space control activities ensure freedom of action in space for friendly forces and, when directed, deny it to the enemy. Space control requires the integration of antisatellite (ASAT), survivability, and surveillance capabilities.

It is essential to acquire and operate ASAT capabilities. The Air Force terminated the F-15 air-launched ASAT program in FY 88, because of congressional testing moratoriums and budget constraints. As a result, the Soviets currently possess the world's only operational ASAT. Although their co-orbital interceptor system has not been tested end-to-end for several years, they maintain military proficiency by regularly exercising all portions of the system. For example, their ASAT booster is the same one used to routinely launch ocean reconnaissance satellites. In support of US efforts to develop the capability to deter ASAT employment and to deny the unconstrained use of space assets against our forces, the Air Force is developing a single comprehensive battle management (BM)/C^3 system to control and integrate all ASAT capabilities. The Air Force is also integrating the efforts of the appropriate weapons developers. Additionally, upgrades to Air Force space surveillance assets will be necessary to support new US space control initiatives. The FY 90/91 funding request for the Air Force portion of the ASAT program is critical to ensuring that the vital US space control capabilities are properly integrated for effective employment. We expect to play a major role regardless of the ASAT system/basing mode selected because the common element will be the Air Force space surveillance and BM/C^3.

It is important for DOD to ensure continuing capability for the control of space by preserving or acquiring those capabilities to monitor continuously all militarily significant activities in space. This requires complementary terrestrial- and space-based systems. The space surveillance network, supports both space control and force enhancement operations. It must provide a widely dispersed, responsive, and capable system of sensors for timely and accurate detection, tracking, and identification of space objects and events.

Given the increasing dependence on space-based systems and the potential of our adversaries to deny our use of them, US space systems need to be made as survivable as the forces they support. Satellite system survivability includes the development of: prototype systems; subsystems; technologies and operational procedures to safeguard satellites; data links; and ground elements to counter ground, air, and space threats and conventional, nuclear, and electromagnetic space threats.

FORCE APPLICATION

National Security Space Guidelines, contained within the National Space Policy, state that, consistent with treaty obligations, the DOD will conduct the research, development, and planning to be prepared to acquire and deploy strategic defense capabilities should national security conditions dictate. If a decision is made to deploy a ballistic missile defense (BMD), Air Force Space Policy envisions acquiring, operating, and integrating space-based BMD assets, as well as providing BM/C^3.

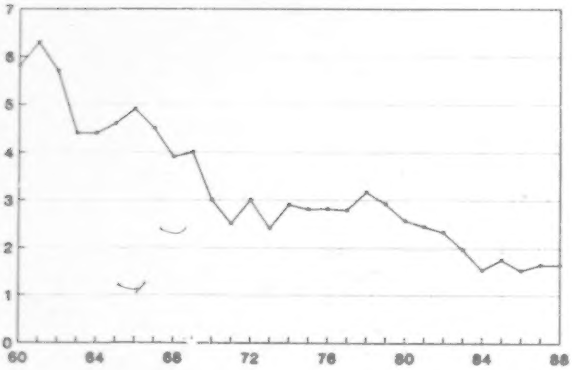
Currently the Air Force works with the Strategic Defense Initiative Organization (SDIO) to complete an evaluation by the early 1990s of the full-scale development prospects of selected defensive systems. The SDI program also acts as a hedge against the unilateral deployment of Soviet BMD systems. Any unilateral restrictions which limit testing of these technologies will severely impact our ability to make a well-informed decision.

The Air Force is the executive agent for three of the six major SDI Phase I program elements: the Boost Surveillance and Tracking System (BSTS), the Space-based Surveillance and Tracking System (SSTS), and the Space-Based Interceptor (SBI). BSTS and SSTS, beyond their roles in a BMD architecture, will provide capabilities essential to the Air Force prosecution of its traditional TW/AA and surveillance missions. In addition, the Air Force conducts research activities to investigate options for sensor and weapon systems for follow-on portions of the Strategic Defense System.

APPENDIX

USAF CLASS A MISHAP RATE, 1960 - 1988

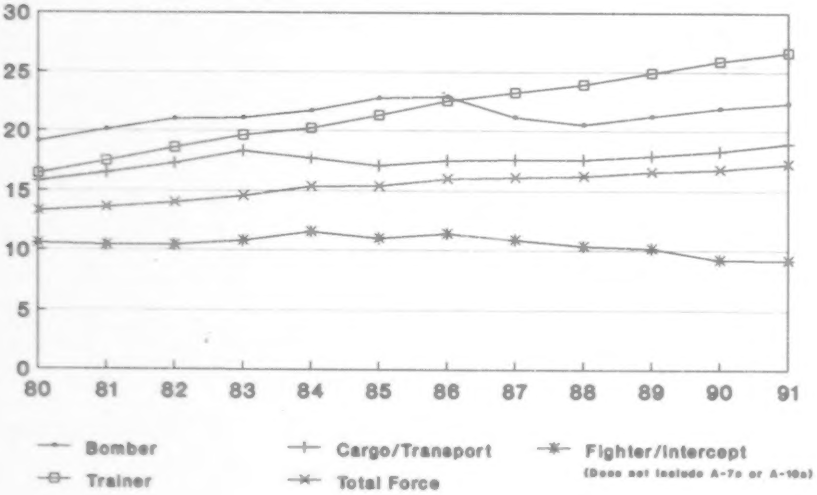
MISHAPS PER 100,000 FLT HRS



Source: SAF/IGA

AIRCRAFT INVENTORY

ACTUAL/PROJECTED AVERAGE AGE



Source: AF/PRPR

SUMMARY OF APPROPRIATIONS (TOA)

(Then year $ Billions)

APPROPRIATIONS	FY 90	FY 91
Aircraft Procurement	16.8	18.2
Missile Procurement	7.4	10.1
Other Procurement	8.6	9.1
RDT&E	14.6	13.5
MILCON		
AF	1.4	1.6
AFR	0.1	0.1
ANG	0.2	0.1
O&M		
AF	22.8	23.5
AFR	1.0	1.0
ANG	2.0	2.2
MILPERS		
AF	20.2	20.6
AFR	0.7	0.7
ANG	1.0	1.1
Stock Fund	0.3	0.3
Family Housing	1.0	1.1
TOTAL TOA*	98.0	103.2

SELECTED KEY PROGRAMS

(Then Year $ Millions)

	RDT&E		PROC		QTY	
	FY 90	FY 91	FY 90	FY 91	FY 90	FY 91
AIRCRAFT (3600) (3010)						
C-17	915	498	1692	2345	6	10
F-15	103	111	1455	1992	36	36
F-16	74	63	3063	2800	150	150
AC-130U	22	13	239	0	5	0
MC-130H	12	12	242	6	2	0
MH-60G	0	0	53	33	4	4
MISSILES (3600) (3020)						
Peacekeeper	15	7	935	1785	12	12
AMRAAM	15	25	903	893	1450	2200
Maverick	0	0	188	175	2270	2020
HARM	2	0	79	45	326	200
SRAM II	217	213	11	79	0	25
SPACE SYSTEMS (3600) (3020)						
DSCS	25	13	49	63	0	0
Navstar/GPS	69	64	70	201	0	0
DMSP	53	50	137	150	1	1
DSP	124	61	372	543	1	1
Space Boosters	413	245	260	207	3	2
Medium Launch Vehicle	0	0	177	234	3	5

*Numbers may not add due to rounding

RESEARCH, DEVELOPMENT, TEST, AND EVAULATION TOA

BUDGET ACTIVITY ($ BILLIONS)	FY 90	FY 91
Tech Base	0.8	0.8
Advanced Tech Dev	0.5	0.5
Strategic	4.8	4.0
Tactical	4.5	4.4
Intel/Com	2.1	2.2
Def Wide Msn Spt	1.8	1.6
TOTAL	14.6	13.5
STRATEGIC ($ MILLIONS)		
ICBM Modernization	889	751
MILSTAR	708	657
SRAMII	217	213
TACTICAL ($ MILLIONS)		
C-17	915	498
ATF	1111	1593
Advance Comm	13	7
JTIDS	42	44
AMRAAM	15	25
Joint STARS	143	59

*Numbers may not add due to rounding

AIRCRAFT PROCUREMENT BY BUDGET ACTIVITYTY

(Then Year $ Billions)

BUDGET ACTIVITY	FY 90 QTY	FY 90 AMOUNT	FY 91 QTY	FY 91 AMOUNT
Aircraft	263	10.8	281	12.0
Modifications		2.2		2.3
Spares & Repairs Parts		3.8		4.0
TOTAL*		16.8		18.2

*Numbers may not add due to rounding

AIRCRAFT PROCUREMENT BY WEAPON SYSTEM

(Then Year $ Millions)

WEAPON SYSTEM	FY 90 QTY	FY 90 AMOUNT*	FY 91 QTY	FY 91 AMOUNT*
F-15E	36	1455	36	1992
F-16C/D	150	3063	150	2800
MC-130H	2	242	0	6
MH-60	4	53	4	33
AC-130U	5	239	0	0
C-17	6	1692	10	2345
C-27	5	74	5	76

*Includes weapon system only

MISSILE PROCUREMENT BY BUDGET ACTIVITYTY

(Then Year $ Billions)

BUDGET ACTIVITY	FY 90 AMOUNT	FY 91 AMOUNT
Ballistic Missile	1.0	1.8
Other Missiles	1.6	2.2
Modifications	0.1	0.2
Spares & Repair Parts	0.3	0.5
Other Support	4.4	5.4
TOTAL*	7.4	10.1

*Numbers may not add due to rounding

MISSILE PROCUREMENT BY WEAPON SYSTEM

(Then Year $ Millions)

WEAPON SYSTEM	FY 90		FY 91	
	QTY	AMOUNT*	QTY	AMOUNT*
Peacekeeper	12	935	12	1785
AGM-65 Maverick	2270	188	2020	175
HARM	326	79	200	45
AMRAAM	1450	903	2200	893
SRAM II	0	11	25	79
DMSP	1	137	1	150
DSP	1	372	1	543
Space Boosters	3	260	2	207
Medium Launch Vehicle	3	177	5	234

*Includes weapon system only

OTHER PROCUREMENT BY BUDGET ACTIVITY

(Then Year $ Millions)

BUDGET ACTIVITY	FY 90	FY 91
Munitions & Associated Equip	0.4	0.7
Vehicular Equip	0.2	0.2
Electronic & Telecom Equip	2.4	2.4
Other Base Maint & Spt Equip	5.5	5.8
TOTAL*	8.6	9.1

*Numbers may not add due to rounding

OTHER PROCUREMENT MISCELLANEOUS

(Then Year $ Millions)

BUDGET ACTIVITY	FY 90	FY 91
Munitions & Associated Equipment		
20MM (TRG & Combat)	32	43
30MM (All Types)	59	59
CBU-87 (Combined Effects Munitions)	157	142
BSU-49/50 Infl Retarder	6	6
FMU-139 Fuze	25	44
BIGEYE	7	61
Bomb Hard Target 2000 Lb	0	27
Vehicular Equipment		
5 Ton Dump Truck	3	4
Mobile Arm Recon Vehicle	0	26
Runway/Street Cleaner	5	9
Electronics & Telecommunications Equipment		
Weather Observation/Forecast	55	51
MAC Command & Control	27	22
Over-the-Horizon Backscatter Radar	210	219
Automatic Data Processing Equipment	74	60
Range Improvements	116	114
Joint Tactical Communications Program	122	119
Spares	254	273
Tactical Air Control System Improvements	233	265
SAMTO Test Ranges I&M	70	67
Satellite Control Facility	68	94
USCENTCOM	9	11
Wideband System Upgrade	56	13
Minimum Essential Emergency Communication Net	3	23
Other Base Maintenance & Support Equipment		
Chemical/Biological Defense Program	57	68
Medical/Dental Equipment	109	82
Mobile Electric Generators	26	29
Air Base Operability	29	20
Mobility Equipment	12	8
Base Procured	35	37

PERSONNEL END STRENGTHS

(In Thousands)

	FY 90	FY 91
Active Duty Military	567.9	566.8
Civilian		
Direct Hire	249.0	249.2
Indirect Hire	13.3	12.6
Selected Reserve		
AFR	84.9	85.2
ANG	116.2	116.3

PERSONNEL COST*

(Then Year $ Billions)

	FY 90	FY 91
Active Duty Military	20.2	20.6
Civilian**	6.8	7.1
Selected Reserve		
AFR	0.7	0.7
ANG	1.0	1.1
AF TOA	28.7	29.5

* Does not include personnel support (medical, training, 50% BOS, recruiting)

** Includes Active, Guard, and Reserve but excludes Industrial Fund Portion

WEDNESDAY, MARCH 1, 1989.

FISCAL YEAR 1990 NAVY POSTURE

WITNESSES

HON. WILLIAM L. BALL, III, SECRETARY OF THE NAVY
ADMIRAL C.A.H. TROST, CHIEF OF NAVAL OPERATIONS, U.S. NAVY
GENERAL A.M. GRAY, COMMANDANT, U.S. MARINE CORPS

INTRODUCTION

Mr. MURTHA. The Committee will come to order. Today we are pleased to welcome the Honorable William L. Ball III, Secretary of the Navy, Admiral Carlisle Trost, Chief of Naval Operations, and General Al Gray, Jr., Commandant of the U.S. Marine Corps, who will discuss the fiscal year 1990 Reagan budget request for the Navy and Marine Corps. We are especially glad to welcome Secretary Ball, who appears before the Subcommittee for the first time. Mr. Secretary, we will place the complete text of each of your statements in the record. As is the Committee's custom, we would ask each of you to summarize your prepared comments, and then we will proceed with questions.

We have been talking to the Services because we are concerned about the signals we are getting as to the amount of money that is available.

I hope you will address not only where the Navy is, but what would happen if there were cuts to $292 billion and $285 billion, at least give us some indication. If you can't do it for us today, give it to us for the record.

We are going to have a tough time keeping the figures at anywhere near the figure that we hear is being discussed in the White House.

Mr. Secretary.

[CLERK'S NOTE.—The Fiscal Year 1990 Posture Statements of Secretary Ball, the Chief of Naval Operations, and the Commandant of the Marine Corps is printed at the end of this hearing. See page 525.]

SUMMARY STATEMENT OF SECRETARY BALL

Secretary BALL. Thank you, Mr. Chairman.

I want to say, first of all, we appreciate the opportunity to appear before you today and I am especially pleased to appear with the Chief of Naval Operations, Admiral Trost, and the Commandant of the Marine Corps, General Gray.

It has been a challenge for us in many respects this past year dealing with the operational and management issues that have been before the Department of the Navy, but I know of no two gentlemen better qualified and more able and certainly no more experienced individuals in uniform today capable of addressing these tough issues than Admiral Trost and General Gray have proven themselves to be.

READINESS IMPROVEMENTS

As you know and most members of the committee know, the readiness of our force today is extraordinary. I believe it to be at a higher level than at any time since World War II.

That is a tribute, to each and every member of this committee who has worked to ensure that over the past decade funds have been appropriated to provide for the readiness improvements that were undertaken during the eighties that have borne graphic results in terms of a 100-percent improvement in the readiness of our ships at sea and a three-fold improvement in our aviation squadrons operating at sea and ashore.

Graphic evidence again in the performance of the crew aboard the *Samuel B. Roberts* where repeated training and damage control paid off and saved the ship.

Graphic evidence in the Marine and sailor who did their job in the Persian Gulf throughout the course of a tough and long deployment there in Operation "Earnest Will."

Graphic evidence again in the performance of the F-14 pilots who were most recently challenged in the Mediterranean while operating off the carrier *John F. Kennedy.*

There have been some proposals made as we move through a period of austerity in our budget that we should do the easy thing and simply absorb a reduction in our readiness, move the scale of fleet readiness down a few notches since, in the judgment of some, war is not likely to occur tomorrow.

I would submit to the committee that that portends a return to some of the difficulties, indeed some of the tragedies that we confronted in the seventies when we permitted the readiness of our force to deteriorate to unacceptable levels and when we saw the results in terms of impact on our people who were required to meet longstanding commitments, tough deployments under grueling circumstances.

Technology is, in many ways, the key to the future of our deterrent. We have presented a modernization program in this budget that we consider to be affordable, and that we consider to be important to assure that the deterrent body in our forces remains strong. We have lessons that we submit to the subcommittee that substantiate our conclusion that competition works. In the institution of our modernization programs over the eighties, we have ample evidence of ways in which the taxpayer has reached significant savings because of the fact that our acquisition strategy has been founded on competition, wherever possible, to ensure we get the best product for the minimum cost.

REFORM INITIATIVES

As the Members of the subcommittee know, the President has directed two major undertakings that will affect the way in which we do business. First of all, he has directed there be a management reform initiative to study all aspects of defense management and the acquisition process and that study is beginning. He has also directed a review of our national strategy, and our objectives that we set for the force structure that we ask the Congress to support.

The Navy and Marine Corps team has a role, of course, that is instrumental in supporting that strategy. That role is amplified and exemplified by the forces we maintain in the far areas of the world where we have commitments, and where we deploy ships and sailors and Marines and where we stand ready to meet the challenges that confront us.

CONCLUSION

One thought I would like to leave with the subcommittee in terms of the assessment of our strategy, what changes in our strategy may portend and what the future may hold, and that is, I think that inescapably technology can be seen as particularly enhancing the reach, effectiveness, range, and capability of naval forces at a very rapid rate.

At the same time, global politics continue to complicate our ability to maintain the extent of the overseas base structure that we have enjoyed in the past. That, in turn, complicates our ability to do many things around the world.

Military realities that we confront, as nations in the so-called Third World acquire more sophisticated technologies, indicate that our forces must be prepared to meet dispersed threats all across the scale in locations where U.S. interests are at stake.

These three elements, changes in technology, changes in global politics, and changing military realities of the Third World lead one to conclude that inevitably more of our national deterrent should be put to sea and the more capabilities we invest in putting our deterrent to sea will pay a big dividend.

Thank you, Mr. Chairman.

Mr. MURTHA. Admiral Trost.

SUMMARY STATEMENT OF ADMIRAL TROST

Admiral TROST. Mr. Chairman, in view of the statement submitted for the record, I would like to confine my comments briefly to the Navy, where we are, and the impact of some of those reductions you have discussed in your opening comments.

First of all, in my prepared statement, I alluded to a short film that we had done back in the October time frame, around the 213th anniversary of our Navy, as a way of showing people what the Navy was all about and what Navy people were doing. I understand you did have an opportunity to view that tape. What it attempted to do was to show that there are a substantial number of our Navy men and women serving in their units, forward deployed around the world on a day-by-day basis, on watch and ready to respond to crisis situations.

We have, as you well know, been called on, along with our Marine forces, to be part of that response to crises which involve U.S. interests in more than 80 percent of the incidents that have taken place since World War II.

We are ready today. We are well equipped. Our forces are sustainable. We have almost achieved that level of force structure which we feel provides us the capability to do any job that we are to do called upon with a reasonable and acceptable level of risk.

Having said that, I am concerned that the lessons learned or rebuilding that capability over the last seven or eight years might be so easily lost. I have rather graphic memories of the time frame in 1980 and 1981 when I commanded our U.S. Seventh Fleet responsible for forces forward deployed in the Western Pacific and Indian Ocean. I would like to give you a few examples of improperly supported forces which once again could become the norm if we don't provide for our national security requirements.

For example, we had some ships forward deployed with, most of them undermanned in terms of talented petty officers, if not in terms of total people and in a relatively low state of material readiness and training readiness. We also had them forward deployed for very excessive periods of time.

As an example, I flew aboard the carrier *Eisenhower*, one of our nuclear-powered carriers on its 155 consecutive day at sea. Shortly thereafter that ship, a Norfolk-based carrier, made a port visit to Singapore, for five days. It returned to station in the North Arabian Sea, in the Indian Ocean, and returned to Norfolk after eight-and-a-half months deployed with only five days in port. That is a fantastic burden on our people and we pay a high price.

Since that time, as our force levels built up, as our capability built up and we got more people, we have been able to constrain our ships to six-month maximum deployments and maintain a reasonable turn-around rate between deployments.

If you look at those people deployed who miss anniversaries, miss the tragedies that take place, miss the birth of children, it is a tough price for them to pay. We owe them reasonable deployments and adequately trained shipmates so they can do their job.

In addition to long deployments, we had maintenance and material readiness problems. When you keep a ship at sea for eight-and-a-half months with no maintenance time, you will see the impact. We were also underfunded for many of the things that it took to fix those ships.

You are familiar with the term "hangar queen" relating to an aircraft that sits on the hangar deck of an aircraft carrier with certain parts taken out to keep other airplanes flying. We had our share of hangar queens. Again, we were poorly funded.

The overall impact of not maintaining the capability that we have to do is really several-fold. First and foremost, we impact almost immediately on the readiness of our current deployable and deployed forces. We impact on the quality of life and the ability to maintain adequate numbers of trained people. We impact on the ability to properly maintain and sustain our ships both operationally in peacetime and in combat. We impact on our ability to modernize those units to meet an evolving threat and to do the necessary research and development that it takes to stay abreast of that threat in the future. Finally, we forgo the investment in force structure that is necessary to provide the basics for future readiness.

So I would hope the Congress sees that as part of its responsibility to maintain an adequate level of national defense so we don't go back to the unsatisfactory conditions we faced less than a decade ago.

Thank you, Mr. Chairman.

Mr. MURTHA. General Gray?

SUMMARY STATEMENT OF GENERAL GRAY

General GRAY. Mr. Chairman, we welcome the opportunity to present our report.

Basically, you will recall last year we laid out a program with respect to where we thought we were, where we ought to go, and a little bit about how we were going to get there.

I will simply say that this year's report to you, Mr. Chairman, tells you what we have done. Basically, we are doing everything we said we were going to do, a little bit more and we will continue to do that. I would ask that our report be entered in the record as you indicated at the outset. We also have included a booklet for everybody, entitled *Concepts and Issues* which lays out what your Marine Corps believes the challenges are that we face as we steam into the 21st century. This book tells of how we ought to get to where we need to go and the concerns we ought to have as a nation and as a Congress. It lays out our plan and talks about all the initiatives that we have undertaken and gives you a detailed progress report with respect to where we are. We would ask that as you study and deliberate over our report, that it be viewed in context with the Secretary of the Navy's posture statement and the Chief of Naval Operations' because they have been prepared in tandem.

There has been much talk about the maritime strategy and seapower capability for this maritime nation, as I prefer to call it. I believe that we need to clearly understand this and understand the focus. As always, there is much talk in this town about strategy, about revising strategy, and about roles and missions. I view that as healthy. I believe that our strategy has worked pretty well. I don't think we are going to have a nuclear war because we have maintained a strategic nuclear balance. I think we have to continue to do that. I don't think we are going to have a global confrontation with the Soviet Union and Warsaw Pact over Europe, primarily because, again, the United States and our NATO allies have remained strong, politically and militarily and economically. The NATO alliance has its ups and downs, but it works. More probably, we won't have to fight in these regions if we maintain our ability for the entire spectrum of conflict to deter war; that is the best insurance that our great nation can have. More likely, the conflict is going to be in the Third World regions where it is going on right now. The forces that can provide the aggregate usefulness in these highly likely Third World conflicts, as well as general war are those forces that have to be protected where possible during this constrained budget period. The same kind of seapower needed to deter conflicts on the high end of the spectrum, also has great utility in the Third World regions.

Clearly, we can operate without having to have bases ashore. We can support ourselves from the sea. We are able to maneuver. We don't need overflight rights and port rights. Above all, we are flexible so we can apply military support to a larger game plan in a given country or given region.

Flexible seapower is needed to be a credible deterrent; and once we are no longer credible, we will no longer deter in my judgment. It is this kind of flexibility that enables us to meet the challenges of the most likely conflicts, as well as, the conflict with the greatest risks. For these reasons your Marine Corps must continue to be the nation's maritime expeditionary force in preparedness.

In our preparations we have leaned toward these conflicts. We are meeting our commitments to NATO, but we are leaning toward the requirements for conflict in the Third World. We have changed our curriculums at our institutions at Quantico and elsewhere. We have adopted the campaign plan idea in all Marine Expeditionary Forces; and as an example, our West Coast Force is actually studying conflict in Central America.

The force that is in Okinawa and Western Pacific today is oriented toward the Philippines.

We are doing these kinds of things and turning on the brain power; it doesn't really cost any money, which is one of my many themes as you recall, Mr. Chairman. We are doing this to improve our preparedness and readiness.

I am well pleased with where we are today. While we have clearly upgraded our training and preparedness, we have to continue the momentum and that takes some funding. We have bitten into our sustainability somewhat. We can do this because the Marine Corps, more so then any other Service continued to buy sustainability throughout the years. I submit we were not alone in our need, but we can say we spent our money wisely.

Today we have a pretty good posture, but we are going to draw from within in order to maintain readiness. We are doing that by dipping into military construction, and into those things that over time will threaten quality of life. As a result it will be more difficult than ever to support our families in the military today. You will recall we said that we have more dependents today; almost 214,000 dependents against an active force of 197,200. So we have to keep these kinds of things in mind.

As we look at our balance, and our ability to maintain modernization, we are beginning to go down. Our procurement accounts, as you well know, have experienced considerable negative growth. We are going to go down here also.

We must be very, very careful. We must continue to state our requirements for what we think is essential if we are going to preserve freedom in the future.

Nevertheless we are thinking about and orienting our priorities toward Third World regions, so-called low-intensity conflicts. What we have done is upgraded our conventional forces giving them a greatly increased capability to operate in these regions. They can not only do those things you do in a revolutionary warfare environment, but also a wide spectrum of special operations. Just two weeks ago, I was involved in our special operations capability.

Now, all active forces can do those operations. For example, on page 1-2 and on 1-7 of our publication *Concepts and Issues,* you will see the oil tower complex we took down in the Persian Gulf, that is not an easy task. The maritime special purpose force did that, three hours and two minutes after they had received the mission. They fast-roped in, put explosive charges around six of the seven towers. They left the seventh tower alone because part of the mission was to let the Iranians get off. They captured some Soviet-made air defense equipment and Iranian command and control items. The tower complex was eliminated as a factor in the Persian Gulf operation.

You don't get this kind of capability easily. We train at 102 sites on both sides of the Mississippi. They are not on military reservations. We trained for the mission on the Persian Gulf oil rigs in the Gulf of Mexico. All this training is being done within the constrained budget of 1989.

We have to continue to do this. Your Commandant has to be accountable to you and the American people for preparedness of these forces. So we must continue to train and prepare. This morning as we meet, I believe that we are probably the only force in the free world or even on the other side of the Iron Curtain, that can meet all of its contingency plans, including general war, without mobilizing a person. Somebody has to have that kind of preparedness. Whoever it will be is what you and your colleagues must deliberate on. But, that is where we are today.

My summarized message simply is, we need to be careful before we cut back a force that is fully prepared to do what must be done.

Thank you, Mr. Chairman.

Mr. MURTHA. Thank you very much, gentlemen.

OVERALL BUDGET CONSTRAINTS

Mr. MURTHA. I just want to reiterate the problems I see with the overall budget. Right at this stage of the game, the most important person in this room is Marty Sabo. He is on the Budget Committee. They are going to decide what the allocation is for all the various agencies including defense.

So I hope today you will give him a picture of the problems we would have if defense were to be cut to the level where I can expect it to be cut to if there is no increase in revenue.

For instance, you are talking about how much better the troops are today. I remember ten years ago going to Parris Island and the drill instructor said the Marines wouldn't fight. I know that has changed. I know since that time, the Marine Corps has increased efficiency and morale and all the services have. In the Persian Gulf, you mentioned the *U.S.S. Roberts*. That ship should have sunk under any circumstance. If it wasn't for the crew working with the tremendous training they had, we would have lost a $430 million ship, plus many people on it. So it would have been a tremendous loss to this country.

Those are the types of things we are going to lose if we start cutting back on readiness, if we start cutting back on money.

Of course, it is a different force today. Ten years ago, ten percent of the people were married. Today I guess it is 35 to 50 percent of the people that are married. That means we have to take care of housing and, of course, the housing I have seen is not the best in the world. I have seen some pretty dilapidated housing. We have made progress, but there are still a lot of problems. I know those are the first things that we think about cutting.

I would assume, Mr. Secretary, since you have been involved in 80 percent of the incidents in the last ten years, that your projected reductions for the Navy and Marine Corps are less than the other services. Is that the way they are apportioning the cuts from the Pentagon at this point, or do you know yet?

Secretary **Ball**. Of course, Mr. Chairman, nothing is resolved finally until we conclude deliberations within the Pentagon about the allocation of the reductions.

Each of the services has been asked to put forward proposed budget amendments to the Acting Secretary of Defense. I think the figure for the Navy's percent of that allocation was 37 percent of the total DOD reduction mandated by the 0,1,1,2 profile.

I hasten to add I am confident that in the ensuing deliberations before the Defense Resources Board, as we address competing priorities, that figure will change. I hope it changes in the right direction.

Mr. **Murtha**. I just hope as we go through these questions that you will answer the problem we have if we have to go to a $285 billion level. I have no way of knowing what the figure will be, but I know this—the revenue estimates are inaccurate. Medicare will not be cut. We are not going to sell off assets to raise this money. Revenue has to be raised if we are going to keep defense at a $300 billion level; at least that is my projection.

So as you answer these questions, I hope you will think about the bottom line and talk about what could happen.

For instance, I know for flying hours we have the best safety record, the CNO told me we have the best safety record we have had in a long time and accident rates are down.

Secretary **Ball**. Yes.

Mr. **Murtha**. I know you are limiting the amount of time they are staying at sea to six months. If we start reducing, all those things start falling apart.

I will let Mr. McDade take over.

READINESS

Mr. **McDade**. Thank you very much, Mr. Chairman.

Gentlemen, let me compliment each and every one of you, not only for the statements that you give us, but for the job that you are doing to keep the Navy in shape.

We have a very high degree of confidence in your leadership and I agree that tremendous progress has been made.

I was interested to hear comments on your side of the table about the issue of readiness, which is an area that I think we all collectively tried to work on for some eight years, to be sure you didn't have problems of a hollow Navy or cannibalize spare parts and all that whole litany and panoply of problems.

Yet we notice around the Capitol and around the think tanks, there is a new breed now talking about this issue of readiness and saying to get at reductions in a constrained fiscal environment, that there ought to be some way to relook at that issue.

Some people, as you know, are arguing that you can pull down a number of people who receive full training and train up when necessary, et cetera.

You are familiar with all those arguments. I would like each of you, if you would, to comment cuts against readiness. Keep in mind these are mostly fast spend-out accounts, when we get to the budget crunching, we are looking for fast spend-outs accounts.

I am sure that is the reason that there is a new cadre arguing that there are ways through steaming hours or flying hours or training, to lessen the impact of the numbers of dollars allocated.

What would your judgment be regarding the impact or is there a way to try to fine-tune readiness in the area of saving fast spend-out dollars?

What would your comment be?

Secretary **Ball**. Mr. McDade, first of all, I would say that the Department of Defense has received from the President, and we have put forward a plan and are discussing how to absorb the reductions now that have already been given to us.

I can tell the subcommittee that within the limits given the DOD, the Navy and Marine Corps can still meet requirements and maintain the force structure we have in being, proceed with our modernization programs at a rate, of course, somewhat less than it would be otherwise and maintain our sustainability goals and readiness goals.

All of this is subject to the final decisions of the Secretary of Defense on zero growth or just real growth, in 1990 and one percent in 1991 and what they mean to each of the services.

Beyond that, if we were asked to absorb significant reductions, I don't see how we could sustain the pace and modernization that would enable us to meet the threats we are certain to face in the 1990s.

I don't think we would be able to meet the sustainability goals we have set for ourselves in order to be prepared to deal with contingencies that at least in our operating areas we see as being contingencies we have to be prepared for.

I don't believe we could maintain the readiness levels that I have spoken to which are part and parcel of our overall international deterrent.

Reductions in readiness as I have mentioned, tend to be viewed simply as saving the dollars we would otherwise spend in O&M. That is no measure of the reduced cost.

When the readiness level of the ship is reduced, there are long-term costs, as Admiral Trost mentioned, such as the carrier that had to endure an eight-month deployment. We are still paying the price for sailors who returned to Norfolk after that deployment and had $100,000 or $200,000 or $300,000 invested in their training who quit and went home. We are recovering from those losses, and that is a ten-year process. So I would argue to those who say we can trim readiness accounts and achieve near-term savings, that you can't simply look at the budget year or the execution year and decide you are saving money. You have to look at the long-term implications of a declining readiness which affects people, affects ship maintenance, affects all the accounts that you know so well go into the real world readiness.

Mr. McDade. Admiral?

Admiral Trost. If I may add to that, Mr. McDade, I think it is natural to see people focus on what we refer to as readiness accounts, the personnel accounts and operations and maintenance accounts, whenever there is a desire to make budgetary cuts with immediate impact in terms of outlays.

So I understand that focus and I abhor it because the kinds of things that happen in generic, but somewhat specific terms, are, in addition to the loss of good trained people, the impact of it.

What we saw was inadequate levels of trained personnel a decade ago. That meant that there weren't people there to train the new guys coming in. The good people who got the training left because they didn't have the satisfaction and they were overloaded. Those who remained lacked the capability to properly operate and maintain equipment. They broke things and then we didn't have the spare parts—also purchased with O&M funds, to repair them for very long periods of time, inordinately long periods of time in many cases.

We ended up with a situation with a downward spiral in readiness. It begins with the people. The recovery began with the people. It began when Congress recognized we had to pay our people better back in the 1979, 1980, 1981 time frame, that we had to take care of quality-of-life items, that we had to properly cover entitlements and special pay. Then, having gotten a start with an upswell, if you will, of personnel readiness, the additional funding for spare parts to properly maintain ships resulted in a much lower cost of operation overall.

In addition, the proposals that would, for example, draw down the trained personnel on some ships and maintain them in cadre status have an adverse impact on personnel as well as an immediate readiness impact.

The ship on which the people are drawn from is no longer maintained as well. It is no longer immediately deployable. When it does deploy, in order to flesh out the trained personnel necessary for a crisis or combat situation, we draw people from other ships who just returned from deployment. That is a vicious cycle that drives people out of the military and we pay the price not only to train the replacement, but in the reduced readiness that results.

Mr. McDade. Is it your feeling that the 0,1,2 percent growth scenario that you look at now would allow you to not only look at the problems of maintaining readiness, but modernization and force structure?

Admiral Trost. It is difficult to say because we are looking at the impact now. I would say we know that our continued goal is to maintain the highest level of readiness with the focus on people. So we will put our emphasis there no matter what we do.

If we do that, the impact is going to have to be on modernization. We will gamble on the near term, and, to a degree, it is going to have to be on downstream force structure so we will mortgage the future a little bit.

One point I would like to make. There is a euphoria bordering on complacency in this country about the actions or the statements of Soviet leadership today. Emerging statements seem to be that the problem has gone away, so we don't need our capability nor the readiness. That ignores the fact that the primary utilization of our forces has been in crisis situations over the last 40 years, where we were protecting U.S. national interests.

It is true that we have structured our forces to be a deterrent to Soviet military capability. It is also true that the forward deployed day-to-day task is in being ready to counter Third World contingency crisis situations where the technology of the threat is every bit as great as if it comes from a major power.

Mr. McDADE. Admiral, while I have you, one of the other things floating around is the question, or the necessity of the 15-carrier battle group.

There are comments that we can do it with 13, comments that if we had to take the *Enterprise* in and do it over, the expense to do it would be too great a strain on the budget.

I know we will get into this more as we go along, but I would like to ask you what is your position on that?

Admiral TROST. As you know, Mr. McDade, we have repeatedly set forth the requirements on the basis of being able to meet our national commitments with a reasonable or acceptable level of risk. If we had our druthers, we would like numbers greater than 15, but 15 is an affordable number that gives us the ability to do the job.

The lesser numbers have the impact that we saw a decade ago where when you are going to meet those commitments, you are going to put people forward and they will stay deployed for a long time at sea. They will turn around again in a much shorter period of time than necessary to permit orderly training and a little R&R for people who like to see their families from time to time.

So the lower force levels, when commitments don't go down—and they have not in my naval career—result in putting the burden on the backs of our people and drive them right out of the service.

Mr. McDADE. So if there was a reduction to 13; A, you say we would not be able to meet commitments unless, B, you imposed unreasonable standards and requirements on the rest of the force.

Admiral TROST. Certainly.

We know we would meet the commitments levied on us, that is our task. But we do it at the expense of the people.

I would take every effort to avoid that.

Mr. McDADE. General, I sure want to hear you with respect to the question of readiness and how we can save money by cutting back.

General GRAY. I would like to add to what has been said already, Mr. Congressman.

I think those who seek to reduce readiness across the board as a means of driving the dollar further down are wrong. It really encourages me to know that you are giving this careful thought because within our system no two military departments are the same. For example, part of the Navy doesn't have a Guard and Reserve capability. So, what may be worth exploring in one military department, may not be in the other. Having said that, the services already have moved considerable capability into the reserve structure which is one of the suggestions that the pundits make. There are no easy answers. It costs money no matter how you do it. It can cost a lot of money to shift units into the Reserves and it takes time because you are dealing with demographics. You are dealing with a whole panoply of situations that have to be carefully thought through.

The main point I would make is that the sea services do the same things in peacetime that they do in war. They are forward deployed at sea, and prepared for any kind of eventuality. This is the essence of global responsiveness and a factor which contributes to deterence across the spectrum. We have to keep that posture. For these reasons the Department of the Navy is on the high ground with respect to preparedness.

You should be very careful before you entertain having us move back from that vantage point. The kinds of situations you might find yourself in are difficult to forecast because as the Secretary said, we don't know how the cut will come down when we finish. How would you feel if you didn't have the battle force in the Sixth Fleet, to include amphibious forces, in the vicinity of Lebanon in case we have to bring people out. How comfortable would you be if that was the case? It could well be the case if you draw down on the readiness of naval power. How would you feel if this morning there wasn't a force in the China Sea prepared to act if necessary with respect to the situation in the Philippines? What would it mean if we didn't have forces on both the East and West Coasts prepared to counter disruptive-type operations in the Caribbean, or to meet any other scenario that might occur. Cuts to naval power could have such impact.

We know that ever since the Nixon doctrine, the Soviets go in every time we create a vacuum. They did it in Africa in the late 1970's and we are only now beginning to get them out. We created a vacuum two or three times in the Caribbean and South America; and look at the challenges we face there. When you look at the globe and what naval forces have to do, regardless of peace or war, it just seems that what has been said about the aggregate utility of seapower is right on. I certainly pledge our full support to continue that kind of utility.

Mr. McDade. General, thank you.

Thank you, gentlemen. Thank you, Mr. Chairman.

KOREAN REINFORCEMENT

Mr. Murtha. One thing in addition to what Mr. McDade was talking about, could we reinforce if there were agreement with the Koreans to pull the ground forces out of Korea? Could we reinforce them?

Do we have adequate forces to reinforce them from Okinawa?

General Gray. For the Third Marine Expeditionary Force in Okinawa, the reinforcement of Republic of Korea forces is one of their major contingencies. They are organized, trained and equipped to not only deploy, but employ anywhere on the Korean peninsula and sustain themselves for 60 days. So the answer is, yes that is what they are prepared to do. The withdrawal of forces from Korea is a subject that has to be very carefully measured politically and militarily. We have to look at a withdrawal of forces from Korea in concert with the recommendations from the Commander-in-Chief Pacific and the Joint Chiefs.

The Marine Expeditionary Force on Okinawa is the spearhead of the forward-deployed maritime capability in the Western Pacific. It is prepared for a wide range of contingencies, stretching from Indonesia to Kamchatka. That force would be an imperative for the preservation of Korean stability if forces were withdrawn.

If you didn't have such capabilities and such a force, you would send a signal to the potential adversaries that we are not really concerned with the Pacific Basin. The big reason those forces are out there is to protect our interests throughout the Pacific Region. Some say they are there to defend Japan; that is foolishness. They are there because already more trade goes on in the Pacific Basin than in Europe. They are there because we have got to maintain stability in that region. So a quick answer is yes.

Mr. **Murtha**. The former CINCPAC commander, Admiral Hayes, felt that after the Olympics, depending on the political situation, that we could look at that possibility.

Do you see the same thing now, Admiral Trost?

Admiral **Trost**. There has been a lot of discussion about whether or not forces could be drawn down in Korea as the Koreans themselves improve their force capabilities. That improvement has been produced in their ground forces, and they depend on our in-country tactical air forces and Navy and Marine Corps forces to rapidly reinforce.

You have probably seen current publicity attendant to Team Spirit, an annual exercise about to take place this year which exercises the rapid ability to bring Navy and Marine Corps forces and out-of-country air forces rapidly into the country and integrate them with those that are there.

I think we will see for quite some time a very strong defense on those forces that can come in to rapidly reinforce. I suspect there will be some pressure to look at the reductions of some in-country forces as the Koreans improve their own capability.

REMARKS OF MR. WHITTEN

Mr. **Murtha**. Mr. Whitten.

Mr. **Whitten**. I served on the Naval subcommittee in 1943, Mr. Secretary, and George Mahon, former Chairman of the Appropriations Committee worked with the Department and the other services as well over the years. Mr. Murtha, I and others have traveled to various sections in the world and have observed our armed forces. We support a strong defense and we want you folks in the military to decide how to deal with the world security situation.

We have been trying to find out what condition our present military is in and it seems to me there is no question but there have been some changes going on. I am sure you have seen changes taking place in the Soviet Union and trying to decide what to do. I can't help but believe that many of these countries that have been friendly could be a problem if a war should break out and we had to depend on them.

It is good to see all of you and it is a pleasure to have you before the Committee. It is not how much you can spend on defense but what you get for what you spend, and I might say I have been proud of the Navy and their role in the defense of our Nation.

Secretary **Ball**. Mr. Chairman, I am reminded that in 1943 when you served as you indicated, the Navy's portion of the defense budget was about 50 percent and if you wanted to revisit some of those numbers, why, that would be fine with us.

Mr. **Murtha**. Mr. Dicks.

Secretary **Ball**. Could I interject one point on the comments made. I want to say briefly, I hope Congress will afford the President an opportunity to conclude his strategy review in which he will consult with the service chiefs and with the Commander in Chief, Pacific, assessing all the arguments and the issues concerning our presence in the Pacific, both our presence deployed at sea and our presence represented by ground forces in Korea. Clearly, this will be a topic of some debate, I am sure, but I am confident the President will have some recommendations to make once the overall strategy review is presented to him by his national-security advisors.

Mr. **Murtha**. We appreciate that. We hope he will do it expeditiously. I know it is supposed to be done by the middle of April. I hope he meets that deadline. Mr. Dicks.

TRIDENT SUBMARINE PROGRAM

Mr. **Dicks**. Secretary Ball, Admiral Trost, General Gray, I welcome you here again today. I represent the Kitsap County area and we have a lot of Navy out there. The Trident program has been a major part of our strategic equation.

Admiral, say we get a START Agreement at some point. There is a question in my own mind about the number of Trident submarines that we will be able to deploy. I have seen estimates that range between 16 and 20. How many Trident submarines do we now have operational and under construction?

Admiral **Trost**. Mr. Dicks, the Trident submarine in the 1990 budget represents Trident 17. I believe the correct number in operation today is nine. The most recent is the *U.S.S. Tennessee,* the first designed from the ground up to deploy the D-5 missile system.

There are a lot of numbers being bandied about under the "what ifs" START Agreement. None of those numbers have come to us but we have a lot of briefing from outside.

Mr. **Dicks**. Like SAC, for example?

Admiral **Trost**. Well, I will leave it at that.

Mr. **Dicks**. I will just tell you they are giving you some help out there.

Admiral **Trost**. We get a lot of help from a lot of areas. I would simply note that I have repeatedly told people that it would be premature to discuss the numbers of warheads that remain at sea in a survivable effective mode under a START Agreement until we know the details of the agreement. We don't want to take actions which would curtail some of our options under START.

Having said that, it is my intent to make sure that national authorities know that there is a certain minimum level of platforms which we should maintain at sea to ensure continued, long-term survival of that very effective platform and that we would without question, under certain START options, make some modifications to either numbers of tubes or warheads per missile in order to have the necessary platforms at sea and to maintain an adequate force of our strategic capability at sea and survivable.

Mr. DICKS. It seems we need to think through how many Tridents we are going to build if there will be a limit at some point.

Admiral TROST. We have done that, and I would be happy to answer that question in closed session.

Mr. DICKS. Fine.

Secretary BALL. If I could make one point, I asked for a statistic on this point, because in my opening remarks I made a comment about the manner in which we have moved our national strategic deterrent to sea. In 1970 we had approximately 25 percent of our strategic deterrent in sea-based forces at roughly 20 percent of the cost of the total strategic budget. Today the percentage of the budget remains about the same, about 20 percent on the total strategic budget. Yet the Navy strategic submarine force consists of over 40 percent of the national strategic deterrent.

That shows the trend that has been borne out by the survivability, flexibility, and cost effectiveness of the sea-based leg. I know there are other considerations, but I think the considerations that have been taken to account since 1970 remain valid.

SSN-21 SUBMARINE

Mr. DICKS. I have other questions but I want to ask about the D-5 program. Let me ask you this. There have been recent stories in the paper regarding the SSN-21 attack submarine. The thrust of the stories have been that, and some of the reviews that have been done, is that we have not properly taken into account the Soviet submarine capability and that we have not gotten as modern a technology in this submarine in order to meet Soviet operational capabilities as we need.

Would you like to comment on that?

Admiral TROST. I would be delighted. Those comments are totally inaccurate.

The SSN-21 design and the capabilities inherent in it are the result of a careful, long-term look at what is required against the evolving threat. It is accurate to state that the Soviet improvement in submarine capabilities represented by the Akula-class attack submarine proceeded at a pace faster than we expected. We saw improvements that we didn't expect for a few more years. It is accurate to say we have the ability to cope with that threat and the improvements in the SSN-21 are intended to assure we maintain our lead throughout the lifetime of that platform.

We have been challenged on a number of occasions by both knowledgeable people and those who are speculators or who toy with technology which they don't understand, and we have been able to satisfactorily refute those arguments in closed hearings with the Congress as well as satisfy groups assigned to study the allegations made. We proved that what we are doing is the proper procedure.

Mr. DICKS. If you would like to expand on that, and answer some of the charges that have been made, I think that would be very useful for the committee.

Admiral TROST. Be happy to.

[The information follows:]

SSN-21 design is optimized to take advantage of all currently feasible submarine warfare technological advances. Maintenance of undersea superiority is provided by SSN-21 characteristics:

Quietest submarine in the world.

Significantly increased tactical speed.

The most advanced sensors.

Significantly greater firepower than any projected threat.

Across all mission areas SSN-21 is more than three times effective as the Improved 688. All analyses conclude that SSN-21 will be superior to the best projected Soviet submarine well into the twenty-first century.

CARRIER BATTLE GROUP FORCE STRUCTURE

Mr. Dicks. Over the years we have heard from Navy leaders time and time again that 15 carrier battle groups is the minimum effective force and that frankly we need somewhere in the 20 range to really be able to cover the world scene in the way it ought to be protected. There are a lot of people who are saying that we can cut back to 13 carrier battle groups because of budgetary considerations. I happen to believe that that would be a very serious mistake. When you start seeing air bases closed in Spain and we have had problems in the past with our close allies in terms of operating capabilities, I think you appreciate more and more the flexibility that our carrier battle groups give us. Now, there are a lot of people pressing to reduce the carrier battle groups. I have read your statement about this; I know you are concerned about this.

Do we need 15-carrier battle groups?

Admiral Trost. Yes, we absolutely do. I focused so heavily on this topic in my statement because of the opposition that is growing to reduce the numbers of aircraft carriers either by curtailing new construction or taking out of commission some of the older ships.

For the very point that you just addressed, for that very reason it would be an error to reduce the capability to deploy forces when required at a time when we are seeing increasing reduced access to overseas base structures.

We have the capability to provide the mobile power projection anywhere in the world at any time. In peacetime we rely on a certain level of carriers simply to meet those commitments which are imposed on us while still maintaining a reasonable operational tempo and turnaround for those forces so that our good, well-trained people stay with the Navy and are not driven out by excess time at sea.

The wartime requirements in the aggregate exceed by a considerable number the 15 groups that are our peacetime goal and our current fiscally constrained goal. Nonetheless, the JCS have looked at the level of 15 and determined that that number does represent a capability which gives us the ability to do our job in a wartime or crisis situation with reasonable risk and reasonable assurance of success.

Mr. Dicks. On any given day, how many are actually at sea?

Admiral Trost. On any given day, there are a minimum of four and sometimes five, deployed and several others involved in training operations, work-up operations or contingency response operations.

Mr. Dicks. A number of them are in the shipyards.

Admiral Trost. That is right.

Mr. Dicks. You don't have all 15 out there?

Admiral Trost. It takes into account there will be a number in overhaul at any time, and therefore the forces take into account those that when brought out of overhaul in a wartime situation, would be fully capable to deploy.

Mr. Dicks. Some have suggested that battleships and surface action groups could act in place of some carrier deployments if there were a reduction from 15 groups to 13. Would it be more appropriate to suggest the battleships better allow the Navy to meet commitments that would fit within the gap between the 15 battle groups we have and the 20 that JCS says are required?

Admiral Trost. The four battleship battle groups that we have in being are best seen as a complement to the carrier battle-group capability. There are occasions when the air threat is minimal, when a battleship battle group with an Aegis cruiser could operate in low intensity environment and carry out the President's mission or power projection requirements in that area. If it is a higher air threat environment, it cannot.

The best example of employment is perhaps the experience in the Persian Gulf. The carrier battle group provided the necessary mobile air cover while the battleship provided the essential impregnable capability to sail in harm's way. That included large cruise missiles launched from shore launchers and still provided the presence and, if you will, the stabilizing influence in that area.

Mr. Dicks. The key is you have to have air superiority in order to defend the surface ships.

Admiral Trost. You generally do in most areas. In areas where the air threat is lighter, the surface ships have sufficient anti-air-warfare capability to accommodate them.

SEA LANCE PROGRAM

Mr. Dicks. Last year the committee funded the Sea Lance ASW stand-off weapon for surface ships and submarines. What is the status of this program and does it retain Navy support?

Admiral Trost. It retains Navy support and it is proceeding on schedule. As you know, it was this committee that initiated the vertical ASROC program as an interim program. We are proceeding with that program. Those missiles are in contract. The Sea Lance program is proceeding on schedule to provide the longer-range capability which would be a common capability for surface and submarine platforms.

Mr. Dicks. Has there been any slip in the IOC?

Admiral Trost. Not to my knowledge.

Mr. Dicks. Could funding cuts of the order contemplated jeopardize this situation?

Admiral Trost. I am not familiar with the numbers, Mr. Dicks.

Mr. Dicks. Why don't you answer that for the record?

Admiral Trost. Funding cuts would jeopardize that situation, but it is a high-priority system.

[The information follows:]

The Initial Operating Capability (IOC) of the SEA LANCE program, following the decision to combine both surface and submarine launched weapons capability into SEA LANCE, has not changed. The driving requirement to provide an ASW Standoff Weapon (ASWSOW) to our surface combatants is a very high priority. Navy's proposal to the Department of Defense to meet the reductions in the FY 1990/91 budget mandated by the President have not included any redirection of funds from the SEA LANCE program.

V-22 PROGRAM

Mr. Dicks. Can you give us a status on the V-22 program?

Admiral Trost. You have the answer on that?

Secretary Ball. If I might, Congressman Dicks, we have a request for that contained in the budget which continues in research and development, and we are waiting for the completion of the first flight of that aircraft, which has been scheduled and now has been delayed.

The occurrence of that first flight and the movement on the production of the first six aircraft we are monitoring very closely. We will be in a better position to assess for the subcommittee what changes to the structure of the program we will seek or recommend once that first flight has occurred.

We have reached other judgments as to the technical status of the prototype aircraft that the contractor team is now producing.

Mr. Dicks. What is the first flight date?

Secretary Ball. Currently it is anticipated in March, next month.

Mr. Dicks. Are you going to slip this program a year or not?

Secretary Ball. We are going to examine the options that are before us under the terms of the contract, of course. We have a contract team working that has thus far performed under a contract written in the government's interest and the Navy's interest that gives us some very favorable provisions that we consider to be realistic.

We would like to be in a position to proceed without inordinate delays, but any restructuring of that program has to take into account that this first flight is a fact of life and the impact on the production of the first six aircraft is a fact of life. So we have to reassess the out-year program and how we get there.

We will be ready to submit recommendations to you as soon as that assessment is done.

Mr. Dicks. At one point when the number of planes that we were going to buy was much larger, we were talking about having a competition. We had two companies working together and they were going to split and compete.

Now it has been suggested that maybe that doesn't make sense, because of the number of aircraft that we are going to procure and that we ought to just have as much competition at the subcontractor level, but not split it up.

Secretary Ball. We think competition works and we think we have a——

Mr. Dicks. Do you have to have the volume, though?

Secretary Ball. Yes. We would like to have more volume in this program and more participation from our sister services in this program earlier than is financially possible for them to provide.

I think we have a good plan at the moment and we think the competitive arrangement is one that will secure our ability to proceed with this program with out-year costs that are reasonable.

We worry, of course, about removing the competitive environment from any major program because we have plenty of evidence on the record that competition works.

Mr. DICKS. General Gray, you still have a requirement for the V-22?

General GRAY. Absolutely. Can I add something, since we are on the subject.

Mr. DICKS. I think you can. Go ahead. Give us your personal and professional opinion.

General GRAY. Let me say first, that I am the principal cause of some of the Secretary's concern. It is my view that the MV-22 is an absolute plus for the military in the future because it gives us the range, the payload, the versatility and the long-range special operations capability. For the other services, too, it provides the capability to come from over the horizon. It is the second part of what I call the triad, the landing craft air cushion is in the fleet; the V-22 will be in the inventory if we do things right; and the high-speed Amphibian is on the horizon.

Why do we have to come from over-the-horizon? The answer is precision-guided munitions. If you don't come from over-the-horizon you will get knocked out of the water. If you don't come from the sea, you won't stay long enough to get a successful political or military conclusion. So an over-the-horizon amphibious capability is crucial. We, therefore must ensure that we pursue the MV-22 program correctly.

The Secretary and the CNO want it done right.

We are on the frontier of a new technology capability. The technology though is sound and practical. I told the program manager, you don't advertise this program or support it; you execute it. When you see things that are not right, you come and talk to us about it. He did in January. We looked at it. You know that the first flight has been delayed somewhat because we have said that we will pursue this program correctly and safely. I happen to think the MV-22 will fly on or about the 16th of March. We will see if I know what I am talking about.

We had a few challenges. We have had delays on the part of the subcontractor in furnishing some parts. Indeed, there is an article about that in one of the papers today. We worked around that. We figured out a way to do that on the ground, and have done it with 100 percent reliability.

There is another little problem we have had with respect to some of the equipment that we needed. We are 85 percent through with the problem and testing it. We want to do it right, above all because we are up on the margin. By that I mean the CH-46, assault helicopter we have today, crosses the line in the middle 1990s. There can be no gap. There can be no one or two-year wait until we field the MV-22 and work out the problems for a couple years. I don't subscribe to that kind of approach.

Mr. DICKS. You don't favor a delay here?

General GRAY. I expect the MV-22 to fight the day after it gets delivered; that is a tough standard for program managers and everybody else. What we have looked at is a way to have a fool-proof test program as much as possible for milestones III A and III B before we go to limited production buy. It is my suggestion that we execute a clause in the contract which permits us to do this right, which some people call a delay. I don't call that a delay. I call that doing it right.

There won't be any real delay in the delivery of the aircraft, initially. We will have a plan before we get all the squadrons on board. It is a plan that we have suggested, and as the Secretary said, we are working this through now.

We believe the Department of the Navy has a fine plan to give us the most exciting aircraft since the original helicopter.

Mr. **Dicks.** Thank you, Mr. Chairman.

Mr. **Murtha.** Are you saying, Mr. Secretary, that there is going to be a billion dollars less in the revised budget for the MV-22? Is that what you are saying?

Secretary **Ball.** No, sir, I am not saying that at this time. I am saying I am going to have to come back to you to let you know what restructuring, if any, we put in the program.

Mr. **Murtha.** It has slipped eight months now?

Secretary **Ball.** No, we seek not to delay but the slippage that occurred in the first flight and other parts of the program are a fact of life.

We need to assess the impact on the out-year program, the five-year defense program of those realities and, as the Commandant says, seek our best strategy to do it right.

Secretary **Ball.** We will give you numbers as soon as we can.

SOVIET SUBMARINE QUIETING

Mr. **Murtha.** Admiral Trost, you said that there has been a big advance in the Russian submarine program, silencing and so forth, much quicker than you expected. Was this due to Toshiba equipment, or is this something that just happened because they got it done faster than you expected?

Admiral **Trost.** The advance of several years in the achievement of better quieting in that submarine is the result of a number of factors. It probably goes back to the 1950s when we kept crowing about how good we were vis-a-vis the opposition, so we set the stage for a lot of legal and illegal acquisition of U.S. technology by the Soviet Union, which, over the years permitted them to build better, quieter submarines.

Without question, some of the espionage cases in the last decade or so have been factors. I would suspect that we lost a certain amount of our ability as a result of the total Walker case with the amount of information compromised there; and in other situations too.

The most recent Toshiba incident has more impact on current and future capability in that it provides an ability to machine much quieter propellers which enhance the capability of existing platforms, but more importantly provides an ability to provide for larger numbers of quiet propellers on future submarines. Propellers are just one aspect of quieting a platform.

Mr. **Murtha.** Mr. Young.

END STRENGTH

Mr. **Young**. Thank you, Mr. Chairman.

Mr. Secretary, General Gray's statement makes reference to a reduction of 3000 in end strength for the Marine Corps but I didn't find reference in your or the Admiral's statement about end strength. What will be the overall Navy situation on end strength with the budget as presented?

Secretary **Ball**. We have a request in before you now for an increase in the Navy end strength of about 4,000 for fiscal year 1990 and an additional 600 for fiscal year 1991. That is to take into account the delivery of new ships to the force, which is offset partially by retirement of some ships that are leaving the force, but the net of the plusses and minuses is that we have that request before you for an increase.

General **Gray**. Congressman Young, may I add, we took an end strength cut of 3,000 in fiscal year 1989; that cost us three infantry battalions. We took that out of muscle. We were trying to do our share. It sticks in my craw to have to cut muscle. We are the kind of force which is organized, trained and equipped for tomorrow's conflict, and we received this cut without regard for how it affects the big picture. As you know I have a new card that says "no more Mr. Nice Guy".

We want to indicate that we took a cut last year that we didn't like. We would like to get it back and we are drawing the line in the sand when it comes to the 1990 budget.

Mr. **Young**. Are you telling us that the Marine Corps is not going to be a kinder, gentler organization?

General **Gray**. The bottom line is always that your Marine Corps will take what you give them and give in return the kind of force that the nation deserves.

Mr. **Young**. I actually asked the question of the Secretary because I wanted to get to you on this issue, that was the main reason I started on that particular subject.

What will you benefit in the Marine Corps from the additional request that the Secretary just mentioned? Will you get some of those 3,000 back?

General **Gray**. No. This requirement for additional Navy personnel, which incidentally we support, is for the round out of the battle force, as I understand.

Secretary **Ball**. Yes.

Admiral **Trost**. It rounds out the battle force requirements, and provides some improvement. We have a continuing increase in our medical personnel limited only by our ability to recruit certain specialties. It protects that. It also provides for some increased manning in certain of our maintenance activities so we can do a better job of keeping our ships combat ready.

General **Gray**. We benefit a great deal indirectly because of the 15 carrier battle group. Today we have amphibious forces which are training with these carrier battle groups. This additional support will allow us to achieve a synergy that has not been in the fleet since world War II, in my judgment. The additional maintenance, medical and other support which would also result means that landing forces are going to be able to operate better, be supported better and suffer less.

Mr. **Young**. The main point on this subject is, we were not cutting fat; we were not cutting unnecessary personnel; we were actually cutting into your ability to do your job by reducing.

General **Gray**. You are right. We cut muscle and we didn't have an alternative. We had already pared down combat service and combat service support. As a result of our study efforts we shifted those forces that could not go to war in 60 days into the reserves.

Additionally Headquarters, Marine Corps had been reduced by 600 people. We had to cut three maneuver battalions.

So, we are cutting muscle. The message which you clearly helped me get across is that we need to be very careful before we cut any more of what is most likely to be needed tonight or tomorrow.

Mr. **Young**. Admiral, I was going to ask you to comment on that.

Admiral **Trost**. Yes, Mr. Young, we do have that end strength increase in the budget request. We are currently at our 1989 authorized end strength of 593,200. That number would be about 608,000 today if we had come in and been able to sustain support for the full amount. That is the actual amount necessary to support the structure we have today.

What we have done is taken from our shore support training establishment the necessary personnel to man the ships and squadrons over the years. So we have operated with a tightly constrained support establishment, and this alleviates only slightly that constraint while providing for the increased manning of the forces coming in.

Mr. **Young**. Would you say any further cuts or a refusal to provide the requested increase is going to affect the muscle of the Navy?

Admiral **Trost**. Absolutely, because the only way we can accommodate those numbers is through further drawdown, either undermanning of ships and aircraft squadrons or further reductions in the support establishment. The support establishment is fleet support ashore, both maintenance and logistics support, and training.

We are really at about a level where we feel we cannot go any lower in that area. So any future cuts will be drawn on existing operations in combat squadrons.

IMPACT OF POSSIBLE PERSONNEL REDUCTIONS

Mr. **Young**. When the Secretary responded to Chairman Murtha about the reduction by President Bush to the Reagan request from two percent to zero growth, I got the feeling he didn't like to do this but he indicated that he could live with that.

How serious would it be if the Congress attempted to take President Bush's budget and then try to reduce it even further, recognizing that the immediate way to get outlay savings is to go into personnel? How serious would it be if the Congress decided to take a further cut?

Admiral **Trost**. Well, I think it would be extremely serious. My opinion is that it would be extremely serious because we are strange people. You see, we are paid to be able to do a job and to get the maximum capability with a given amount of funds. We are also paid to be relatively expert on the national security requirements necessary to meet the nation's interests.

Having said that, we are very concerned about the proposals which would cut into the capability which we have worked so hard to build up and which the Congress has clearly accepted as necessary in years past. So it would have a very, very serious impact because we would be drawing down on that capability.

We would be reducing the readiness of what remained. We would be taking away the improvements in many cases that we made for our people which have resulted in literally unprecedented, continued retention of good, trained people. The long-term impact is a less ready military, a lesser national security than that which our country needs, and a reduction in capability at increased costs, because you are going to pay the price of lower readiness in things that don't work properly, and in higher training costs for the replacements for the people who won't stay around.

Secretary BALL. If I might add, Congressman, I would add that after four consecutive years of real reductions, it is especially important that those who support the President's recommendations here do their utmost to give us the stability we really need in 1990 and 1991 programs.

The reductions that you referred to earlier in personnel which were so disruptive on the Marine Corps and Navy and all the services, stemmed from the so-called budget summit agreement in 1987. I was privileged to participate in those deliberations, and it was a last-minute agreement late in the year and Secretary Carlucci was given this tremendous number that had to come out of the program all of a sudden, a tremendous cut, as I recollect, of $33 billion that he had to take out of a two-year program.

So inevitably when those kinds of ups and downs that the Members of this subcommittee have attempted to fight off over the years, are imposed on us, when they are of that order of magnitude, there is no place to go but personnel.

Having gone through that very difficult experience, I think the President respects the fact now that he is determined to make an effort in dealing with the deficit problems we face, he respected the advice and counsel of the service chiefs and Chairman of the Joint Chiefs insofar as providing stability to the program this year, modest growth next year, and two percent growth after that because of his concern with the impact of these back-and-forth ups and downs that are so tough on our people and our ability to do our job.

Mr. DICKS. Would you yield a second?

Mr. YOUNG. Sure.

SEQUESTRATION

Mr. DICKS. I hear all that, but I was at a meeting where Mr. Darman said—this was a couple months before he had been fully briefed and I am sure that you and others have explained this to him. But he was kind of cavalier, I thought, suggesting that sequestration might be something that we could accept.

Some of us there who understand a little about defense tried to explain the impact that a sequestration would have on the defense budget. You would have to cut a lot in new budget authority to get the outlays down with a $15- or $19 billion sequestration. We are talking about $35- or $45 billion in terms of reduction of new budget authority in order to get down, to reduce outlays that much.

You have been at both the White House and over with the Secretary of the Navy; do you think the Navy could stand sequestration?

Secretary BALL. The law which triggers sequestration does not give the President much flexibility in allocation of that. Certainly in his role as Commander in Chief, there are limits to what he can do to absorb that reduction to the Navy.

I don't think there is any question but that sequestration poses stark hazards to all aspects of our ability to do our job in the Defense Department. Any counsel any representative of the Defense Department gives the OMB director or others in the budget process has to focus on what the consequences of those kinds of stark reductions would have on the national-security side.

Clearly, there is nothing in the Gramm-Rudman-Hollings law in allocating this reduction that takes into account or gives the President any authority to protect or otherwise waive the impact on the national security. That is obviously the concern, of anyone that is involved in defense.

Mr. DICKS. Thank you.

Mr. YOUNG. I was interested to hear that you took part in that budget summit, Mr. Secretary. Last year I must have asked 40 or 50 witnesses who came before this subcommittee if any of them had any participation or input into the decision that was made and for those people responsible for our national defense, I didn't find a single one who said that they had any involvement in that budget summit. I am happy to know that at least one person was involved in it.

Secretary BALL. I will not claim authorship.

Mr. YOUNG. I got the feeling we were playing with political numbers rather than national defense numbers and actual national defense needs.

Mr. Chairman, I finally found one person that took part in that.

Mr. MURTHA. Anyone who admits they took part.

Mr. YOUNG. That may be——

Secretary BALL. I will provide other names for the record.

FUNDING FOR MARINE CORPS RESERVES

Mr. YOUNG. The admitting part may be key to that discussion. General, when we talked about your ability to get there with your troops and do your mission, you mentioned if you can't get there in 60 days, you put it in the reserves.

Last year, the money that we appropriated for the reserves was about $1.3 billion. Did you feel the Marine Corps got a fair share of that, the Marine Reserves?

General GRAY. Our share was $91.8 million last year. The answer to that is no. Obviously, we would like to get a little better authorization. Having said that, we have given this a lot of thought, as you well know, and we are looking at ways to do this better. As I alluded to earlier, we have a different structure in the Navy Marine Corps team than we do with respect to other services' departments, so we would like to get a little more of what we would think would be our fair share.

We think it is essential to have a total force package. The total force I see depends on mobilization. We have a strategy within the Corps, for example, with respect to the art of getting things done. We are focusing on the Marine Corps and what the nation will need in the year 2000. We have said that today we can meet our biggest commitment, which happens to be two Marine Expeditionary Forces for Europe. We can meet that today and all the major contingency plans and all the Unified Commanders' needs without mobilizing a person. We think this is essential to have that preparedness initially. What we have said is not only can we meet these requirements, but we sustain it for a period of 60 days. That is the minimum we suggest the nation go in preparedness. Beyond those requirements, it is our Selected Marine Corps Reserve that would round us out to give us additional sustained capability beyond 60 days.

We are moving some of the heavier capability, self-propelled artillery, armor, and additional light-armed defense battalion, into that Reserve structure.

We would, for example, like to replace our AH-1 Cobra gunships which are Vietnam vintage. As you know, we brought the Whiskey gunships into the force now. We would like to do that and figure out a way to keep the Cobra line open and work them in, because we need really two squadrons in the reserves to fill them out.

Our Selected Marine Corps Reserve fleshes out the Marine Expeditionary Forces for the long haul, provides the nucleus additional forces.

AV-8(B) PROCUREMENT

Mr. Young. I am glad you mentioned the AH-1 Cobra. I was going to ask you about that, and the Chairman was looking at the clock, so my time is out. I am glad you threw that in.

Let me ask you to make another comment and that is the cost savings, and specifically in the program, the AV-8B program. All of us think it is an outstanding program, with excellent aircraft involved. Where do we stand there?

Are we saving as much for the taxpayer through multiyear contracting as we expected to?

General Gray. Yes. Through the efforts of the Congress, we have been able to procure the world's finest close air support airplane and institute a three-year, multiyear program. We saved about $123.7 million because of your efforts. We are very pleased with that.

Mr. Young. If you would like to expand on that for the record, please do. I have other questions for the record.

General Gray. Yes, sir.

[Clerk's note.—Questions submitted by Mr. Young and the answers thereto follow:]

SHIPBUILDING CONTRACTING AND COMPETITION

Question. I would like to touch briefly on the industrial mobilization base regarding ship construction, a subject I know gives this committee grave concern. Based upon the Navy's own statements as found in the second source strategy report to this committee, the proposed Navy policy if followed would undoubtedly allow three yards to go out of business and we understand a fourth yard has determined to do no more new construction. Thus, there would be only four shipyards in the United States capable of new construction for the Navy. This appears to be an over concentration in four yards and certainly cannot constitute an industrial mobilization base. I know there are other yards that can do repair, but I am discussing exclusively new construction. I hope you are reviewing this policy, since I believe that even eight yards are not sufficient. I think this policy needs serious review and it is something this committee will remain concerned with.

I have seen news releases which indicate the Assistant Secretary of Logistics and Shipbuilding has indicated he expects $2,900,000,000 in claims from the shipyards currently constructing vessels for the Navy. As I said earlier, this concentration of all the work in a few yards without competition creates an atmosphere that makes claims the natural antecedent to any contract. Does the Navy have a policy on contracting out in such a way as to minimize claims? Would not greater competition create a better atmosphere?

Answer. We do not expect $2.9 billion in shipbuilder claims. We expect our contractors to perform to their contracts and sufficient shipbuilding funds have been appropriated to build the ships in our program. We do not need any additional funds for ships already appropriated. We have contracts that are incentivized so that contractors are rewarded if they successfully manage programs to meet cost commitments they made in their contracts. Competition and our contracting approach have been instrumental in saving the taxpayers billions of dollars. We currently have the greatest degree of competition in Navy acquisition in recent memory. In FY 1988, 92 percent of our contracting actions were competitive compared to only 30 percent in FY 1982. In FY 1988, 56 percent of our procurement dollar value was competitive compared to only 27 percent in FY 1982. In shipbuilding, every contract is now competitive except for nuclear aircraft carriers. These initiatives have resulted in our shipbuilding program saving more than $9.2 billion below the President's budgets since FY 1983.

Question. Finally, Mr. Secretary, to be somewhat parochial, getting back to the industrial mobilization base, the RFP which offered the last seven TAOs for contract was amended twice on the basis of creating an industrial mobilization base and then to concentrate all seven vessels in one yard appears to defeat the very basis of your determination and findings on the necessity of the industrial base. There is an inconsistency there that I wish you would review and we can discuss later.

Answer. In this era of increasingly constrained budgets, it is incumbent on all of us to avoid paying unwarranted price premiums to maintain the industrial base. Congressional appropriated funds for the final three fleet oilers which reduced the President's Budget are sufficient only for a contract award to the low offeror and a three ship award to other than the low offeror cannot be made. Our shipbuilding program, as constrained by mandated defense budget reductions cannot now support price premiums to maintain excess production capacity beyond the immediate production requirements of our program. Congress can certainly create programs and appropriate funds to maintain a shipbuilding industrial base of excess capacity as a hedge against mobilization shortfalls in the event of a protracted, global, high-intensity conventional war among superpowers. However, our shipbuilding program has been fiscally constrained to provide only for efficient, competitive production of combat and supporting vessels required to deter war among superpowers and meet lower intensity operational contingencies. In the past, we were funded by Congress to pay a price differential to maintain excess production capacity, as in the FFG 7 program with three shipyards, where long term, high rate, continued production was anticipated. The TAO fleet oiler program meets neither of the circumstances. No funds were appropriated to pay a price differential and the three ships to be awarded are the last ships in this program.

[Clerk's note.—End of questions submitted by Mr. Young.]

Mr. Murtha. Mr. AuCoin.

AAWS-M AND DRAGON PROGRAMS

Mr. AuCoin. Thank you, Mr. Chairman.

General Gray, I would like to ask you a question about a topic that you and I have had a number of conversations about, and that is the medium anti-tank weapon for the infantry.

You and I both believe that a true fire-and-forget capability is absolutely essential for the Marines certainly and it has been my belief that it is essential for the Army as well. I know that you feel very strongly about this, and I know that you must have watched the recent Army source selection on the AAWS-M program. It does provide a fire-and-forget solution. I would like to hear you indicate today whether this is in fact the choice you would have made and if this is the choice the Marines have been looking for for all these years.

General Gray. I think the AAWS-M fire-and-forget technology is something that we ought to strive to achieve. It is a great way to go.

It has clear tactical advantages on the battlefield. It is much easier to handle in radiation, dangerous situations, and aboard ship. There are a host of reasons why your Commandant supports this program, and we have. We have a Marine in that source-selection process, and he went forward and said this capability is needed. Having said that, we have in the Fleet Marine Forces our Dragon capability that is in the hands of my troops. I want to make sure——

Mr. AuCoin. The Dragon II capability?

General Gray. The Dragon II and III program. You helped us with the programs last year. The AAWS-M for your Marine Corps is going to be an affordability problem, that is a fair statement, I think. Somewhere downstream you are looking at, a high-low mix. That is probably all we can afford. In the meantime, the Dragon III program is coming along. It is in the hands of the troops today; that is why we fought so hard last year.

Mr. AuCoin. Dragon III, even though it is an improvement over II, it is not fire-and-forget?

General Gray. That is right. It is not a fire-and-forget missile, but it is good in the hands of my young infantrymen that can take out armor and other kinds of military targets. The AAWS–M to us looked very good. We are fully supportive of that technology. We are looking forward to——

Mr. AuCoin. Would it be safe to say this AAWS–M offers a survivability answer and that the affordability question has to be measured against the value it buys? If you buy survivability even at a higher price, I think that is a bargain if you are talking about the survivability of the troops in the field.

General Gray. As you well know, the AAWS–M, is a great program. If we can afford to field enough of them for our people, then——

Mr. AuCoin. That would be the answer you would like to see?

General Gray. It is clearly.

Mr. AuCoin. In the field.

General Gray. Yes. But, my best sensing now here is that we will have Dragons in our hands for a long time. That is why I want to continue to talk about it further.

Mr. AuCoin. I know the Marines were skeptical that the Army would arrive at an acceptable fire-and-forget system. I can understand why you would be skeptical about whether enough of these would ultimately be built.

General Gray. General Tom Morgan and I spent a great deal of time on this program. I have never been skeptical of it. I have been concerned about the research and development and acquisition-dollar figure to bring it along. Clearly when you are entering your fourth-year of negative growth, we have to be concerned. We had the same concerns last year. We fully supported it. We participated in their selection process. It went the way we had hoped it would.

Mr. AuCoin. Which is the fire-and-forget solution. That is the direction it went. That was what you hoped for.

General Gray. Absolutely. And anything short of fire-and-forget——

Mr. AuCoin. You probably would have walked away from participation if it hadn't been for the fire-and-forget.

General Gray. Most gunslingers would have.

Mr. AuCoin. I can't blame them. I would hate to be a Dragon user and frankly not even a Dragon III user.

General Gray. Don't sell Dragon II short.

Mr. AuCoin. We will let you have them then.

General Gray. Well, we will take them. We will take any help we can get.

Mr. AuCoin. Every time I visited an infantry battalion and asked for the poor devil to raise his hands to operate the Dragon II, the rest of his comrades started chuckling. He probably has a hard time getting a life insurance policy.

General Gray. You need to visit our units, because we use our Dragon capability. We can shoot them better than anybody in the world. We know that. We know how to fight with it. This Commandant will never put people in a position where they don't have an edge on any potential enemy.

Mr. AuCoin. You can shoot the fire-and-forget better than any other branch of the services, too, if we were able to give you that fire-and-forget system?

General Gray. Yes. Right now, if we are going to be the nation's force in preparedness, you don't want us to go to war with a pencil.

Mr. AuCoin. No, you want to see this built and see what the costs are and your caution about it. I understand. But given the potential, I just would like to get a reading from you today as to the priority you would assign to seeing if that potential could be realized in an affordable way. Is that a high priority?

General Gray. Our position is it is high priority. Our position is to support the AAWS–M program.

Mr. AuCoin. Great.

General Gray. It has the potential to be a very fine system on the battlefield of the 1990s.

The caveat that I offer is that the Marine Corps must always be careful we don't get priced out of the market.

Mr. AuCoin. I understand.

General Gray. I have a concern here. There are a lot of places where we will probably fight in the world where the Dragon II and Dragon III will be good enough for us. I have suggested to my strategic thinkers in the Corps that we fully support fire-and-forget technology though.

Mr. AuCoin. Thank you, General. It has been good working with you on this issue.

General Gray. Thank you.

SOVIET SUBMARINE FORCE

Mr. AuCoin. Admiral Trost, I have been reading statements from the esteemed faculty members of the Monterrey Naval Post Graduate School and elsewhere that the Soviets are facing a block obsolescence problem in their submarine force. I am looking at the article, most recent I have seen, 27 February from the Washington Times here by Mr. Breemer, professor at that school.

Does that square with your information? Is that your belief as well?

Admiral Trost. First I have seen the article. I don't know Professor Breemer. The Soviets have a block obsolescence problem, if you say that building an average of 12 submarines per year results in 12 submarines per year becoming obsolete at some point in the future.

Mr. AuCoin. Many vessels are more than 30 years old. The submarine fleet is faced with a massive block obsolescence.

Admiral Trost. I think he refers to the fact that a lot of the 1950's submarines of the Whiskey and Foxtrot classes and some Romeos are certainly more than 30 years old. A lot of those are in what the Soviets call conservation or mothball status and are not being used.

When you have a submarine force that numbers about 370 including those that you have sort of sitting aside parked, you have a lot of flexibility before you worry about block obsolescence.

I would have to see much more of what he refers to. From what I know of their force, yes, there are a lot of older submarines. There are also a lot of newer submarines. They have built at a very rapid rate over the years and slowed down recently only because they are building a lot more capable ships that take longer to construct.

Mr. **AuCoin**. This is one of the premier schools, the Monterrey Naval School?

Admiral **Trost**. Yes.

Mr. **AuCoin**. Would you like to amplify that for the record?

Admiral **Trost**. I would be happy to. I would have to see what the professor had in mind.

[The information follows:]

Professor Breemer is correct in asserting the Soviets face a block obsolescence situation in their diesel submarine force. Approximately 160 such submarines were constructed from 1954 through the mid-1960s and will be obsolete by the mid-1990s.

We expect the Soviets' general purpose submarine inventory to decline in the coming decade—due primarily to increased scrapping of obsolescent units and less than one-for-one replacement by new, technologically sophisticated submarines which take longer to produce than their predecessors.

In any event, the Soviet submarine force of the mid-1990s—while probably smaller in number—will assuredly be more capable than today's, as more qualitatively better submarines continue to enter the fleet.

Mr. **AuCoin**. What is the average age of the Soviet submarines compared to ours?

Admiral **Trost**. I would have to provide it for the record. I know they have a lot of them in excess of 35 years old; they have a lot that are brand new.

Mr. **AuCoin**. Can you give that to us on a comparative basis.

[The information follows:]

A comparison of Soviet and U.S. submarines by age follows:

NUMBER OF UNITS

Type	Active	Average age (years)
Soviet Submarines		
Diesels:		
Zulu IV	[Deleted]	33
Whiskey	[Deleted]	32
Golf II	[Deleted]	27
Romeo	[Deleted]	26
Foxtrot	[Deleted]	24
Juliett	[Deleted]	23
Tango	[Deleted]	10
Kilo	[Deleted]	4
Total	[Deleted]	[1] 25.7
SSN's:		
Hotel	[Deleted]	28
November	[Deleted]	27
Y Notch	[Deleted]	19
Yankee	[Deleted]	18
Victor I	[Deleted]	18
Echo	[Deleted]	16
Victor II	[Deleted]	15
ALFA	[Deleted]	12
Victor III	[Deleted]	7
Mike	[Deleted]	5
Sierra	[Deleted]	4
Akula	[Deleted]	1
Total	[Deleted]]	[1] 14.8

NUMBER OF UNITS—Continued

Type	Active	Average age (years)
SSGN's:		
Echo II	[Deleted]	24
Papa	[Deleted]	20
Yankee	[Deleted]	18
Charlie I	[Deleted]	18
Charlie II	[Deleted]	10
Oscar I	[Deleted]	7
Oscar II	[Deleted]	2
Total	[Deleted]]	[1] 18.7
Total SS/SSG/SSB/SSGN	[Deleted]	[1] 22.1
SSBN's:		
Yankee II	[Deleted]	19
Hotel III	[Deleted]	17
Yankee I	[Deleted]	16
Delta I	[Deleted]	14
Delta II	[Deleted]	13
Delta III	[Deleted]	10
Typhoon	[Deleted]	5
Delta IV	[Deleted]	2
Total	[Deleted]	[1] 12
Special purpose:		
Nuclear	5	16
Diesel	10	18
SSUN's	13	18
Total	28	[1] 17.7
Total Soviet submarines	370 (78)	[1] 20.4
U.S. Submarines		
SSN's:		
Ethan Allan	2	28
Permit	13	25
Norwhal	1	21
Sturgeon	37	19
Lipscomb	1	16
Los Angeles	37	8
Total	91	[1] 15.6
SSBN's:		
Lafayette	8	27
J. Madison	9	26
B. Franklin	12	24
Ohio	8	5
Total	37	[1] 20.5
Total U.S submarines	128	[1] 17.5

[1] Average.

Mr. **AuCoin**. Is it your expectation the Soviet submarine force levels will go up or down in the next ten years?

Admiral **Trost**. I expect them to go down. I expect that they will scrap a number of their older submarines, which are probably no longer safe to operate, and also ships that are obsolescent in terms of capability. I expect they will continue the emphasis of the last several years in improved capability.

Mr. AuCoin. Quieting.

Admiral Trost. Quieter ships with better weapons.

Mr. AuCoin. Do you have a rough guess about how much, a percentage?

Admiral Trost. No, pure speculation would be—it depends on the rate at which they would get rid of some older ships. I fully expect as part of this overall force reduction, we will hear something about naval force reduction in the near term. It is a good political move to drop something on the table, and say, "Look what I am cutting back," even if it is old ships that would have been scrapped anyway.

PUBLIC-PRIVATE SHIP REPAIR COMPETITION

Mr. AuCoin. Mr. Secretary, I want to talk a little bit about ship repair although I don't want to take a lot of time on this. We visited about this the other day.

In looking through the budget submission for fiscal year 1990, I see that yet for another year a provision on page IG-8 of the budget appendix deletes the public-private competition program. I think it was a year ago that I discovered this same deletion and raised this subject with Secretary Lehman.

I am looking at the record. He said to me when I raised this to him, "This is the first I have heard of that." Those are his words. The program is a real success. He was referring to public-private competition.

He said:

> The back-up papers to the budget will be corrected at the earliest opportunity when we get back to the Pentagon, because there is no intention to eliminate this, but obviously there are people back there in the bureaucracy that don't like this because it is a pain in the neck.

Whereupon the record shows Mr. AuCoin handing the Secretary a copy of the page from the budget documents to take back with him to the Pentagon, and I indicated that it was my understanding from his response that he did not want that deletion to be reflected in the budget.

Secretary Lehman, according to the record, says, "That is right. It is deleted again."

Are those people down in the bureaucracy still at work?

Secretary Ball. Must be a little hard of hearing.

Mr. AuCoin. Can I hand it to you and have it corrected?

Secretary Ball. Let me say on that, that of course ten percent of our ship repair has been allocated to the public-private competition. It has worked well. There have been a number of cases where we can cite examples of how we learned to manage it better. It is a complex competition to administer, but we have developed the skills to implement it, and it is a good idea.

Mr. AuCoin. Assistant Secretary Pyatt said last year that the Navy had reduced overall public yard costs by $500 million a year as a result of the competition. Do you have any reason to disagree with that?

Secretary **Ball**. No. No, I don't. I think that is probably a reasonable estimate. This year, in the 1989 program, I mean to say, I have the figures and I will—we are executing the 1989 program.

We have had the traditional policy of a 70/30 split, 30 percent for the private sector. We are executing the 1989 program about 30 percent for the private sector right now, which will result in about $1.4 billion, in my estimation, being contracted to the private sector in ship repair with about half a billion set aside in 1989 for the public-private competition.

Mr. **AuCoin**. I have a question for your response for the record about the Navy's ability to maintain a minimum core loading in order to maintain a rapid-response capability.

I submit that for the record.

[Clerk's note.—Questions submitted by Mr. AuCoin and the answers thereto follow:]

Question. Mr. Secretary, in light of the Navy's expanded program to compete ship repairs and overhauls, has the Navy been able to maintain the minimum core loading at the naval shipyards in order to maintain a rapid response and skilled workforce?

Answer. To date, the Navy has been able to maintain the minimum core loading at the naval shipyards in accordance with requirements stipulated in OPNAV Instruction 3050.22 (Strategic and Operational Requirements for Naval Shipyards).

The public shipyard workforce will be sized to ensure that a balance between workload and workforce is maintained. It is anticipated that this will require some drawdown of employment; however, the core workforce will meet OPNAV requirements.

[Clerk's note.—End of questions submitted by Mr. AuCoin.]

NEW THREAT UPGRADE

Mr. **AuCoin**. Mr. Secretary, how is the Navy proceeding with the new threat upgrade program as required by last year's conference agreement? Are RFPs out?

Secretary **Ball**. It is my understanding they are, and we are proceeding to execute that program as the program is addressed in the law. We have every confidence that we can once again show how, in that instance, again, I would say, though not easy to manage that kind of competition, we can do it in an efficient way.

I have not reviewed the particulars in the RFP itself. I do know questions were raised about certain aspects of the RFP which Mr. Pyatt and I have discussed in general terms, and I will have a further review of that.

That is a very important program. We are making significant investment in the program and we are grateful to have had the support of the subcommittee for the new threat upgrade.

We have capable ships, capable hulls with machinery that still has a lot of life in it. This kind of program, to provide an enhanced AAW capability to these ships, is cost effective. It saves us a significant amount of money as compared to buying new ships, and enables us to make productive use of platforms that have a lot of life in them.

Mr. **AuCoin**. Mr. Secretary, Assistant Secretary Pyatt has stated before the committee that all of the non-nuclear threat upgrade overhauls after fiscal year 1988 would be competed. Is that still the case?

Secretary BALL. As far as I know with respect to the non-nuclear ships, that is the case, but I would have to submit that for the record.

[The information follows:]

In compliance with Congressional language, the first two NTU installations in fiscal year 1989 were in public shipyards and the last four in fiscal year 1989 are being competed. All non-nuclear powered NTU ship installations in fiscal year 1990 and thereafter will be competed.

Mr. AuCOIN. You mentioned the difficulty that was brought to your attention about the nature of the RFPs on the NTU overhauls issued December 2, 1988. What those have to do with, and I won't press you for an answer here and perhaps you can provide additional information for the record, but the problem is, as I understand it, that those RFPs, require extensive information on each bidder as they go to the table and they require financial verification of how the contractor will finance company-wide indebtedness during the overhaul.

It is my understanding that that information, that that detailed information has never before been solicited that early in the bid process. It normally comes after the bids have been awarded in the pre-award stage.

I am correct in that last statement I made, am I not?

Secretary BALL. Yes, you are.

Mr. AuCOIN. Okay.

Secretary BALL. And we are not in the business of creating additional paperwork for those who would like to do business with the Navy. Financial responsibility is an important criteria in any assessment of any proposal, of course, and in this case I am not sure what specific information we have requested and I will review that.

Mr. AuCOIN. The only reason I raise this question is that it occurs to me as I think I have indicated to you the other day, Mr. Secretary, that front loading all of those financial guarantees before a company comes to the bidding table really requires them to go to the line up of the financing before the company has the work in hand. I think that may be an impossibility whereupon that would be a limitation to competition.

If you can look into it, I would appreciate that.

Secretary BALL. Certainly we don't intend to limit in any way the competition.

Mr. AuCOIN. I know that is not your intention.

Does the Navy have outstanding claims in the bidding yards for the NTUs? It does, doesn't it?

Secretary BALL. I imagine we do. I don't have specific ones in mind right now. Yes.

Mr. AuCOIN. If there are yards that are bidding for NTUs, that do have outstanding claims, is it in the Navy's intention to disqualify those yards based on what I have just described from the competition on the NTUs?

Secretary BALL. We have established procedures for review of claims that depending upon the circumstances, do not necessarily disqualify the bidder from participating in the program on the basis of a claim.

I would say that it certainly is something taken into account if it directly affects the program in question.

Mr. AuCoin. I am just simply asking if the RFP structure that I have just described would disqualify yards who are in pursuit of the NTU work from going forward and bidding?

Secretary Ball. No.

Mr. AuCoin. Under the terms of the RFP?

Secretary Ball. No, I don't believe it would. No.

Mr. AuCoin. How about a company operating under Chapter 11 based on the nature of the RFPs that I have just described for the NTUs. I know that Todd shipyard in Washington State is operating under Chapter 11. Would a company like that be disqualified?

Secretary Ball. Well, we have to assess financial responsibility on the part of all our contractors, and the ability of any bidder to execute a contract and meet the financial commitments that are necessitated.

Mr. AuCoin. I don't mean in the pre-award stage; I mean at the point of the RFP, making the bid on the RFP. Is it the Navy's intention to disqualify a yard like that from even bidding?

Secretary Ball. No, from even responding to the RFP, I don't believe so.

Mr. AuCoin. I have other questions, Mr. Chairman, for the record that I would like to submit at this time.

I appreciate all your responses.

[Clerk's note.—Questions submitted by Mr. AuCoin and the answers thereto follow:]

PUBLIC/PRIVATE COMPETITION AVAILABILITIES

Question. Mr. Secretary, could you please provide for the record a complete schedule of the number of ship repair opportunities you competed and plan to compete this fiscal year between public and private yards, and the names of the vessels. Please provide this information prior to April 3rd, so that we may be prepared for the Assistant Secretary for Shipbuilding's visit.

Answer. Data provided follows. These are availabilities that will start in FY 1989.

FY 89 PUBLIC/PRIVATE COMPETITION AVAILABILITIES

Ship & Hull	Availability Dates	Repair Activity	Award/Assignment Date	Award/Assignment Price
		ROHS (Surface Ships)		
East Coast				
USS CARON (DD-970)	10/31/88-10/31/89	Avondale Industries	08/12/88	$18.9M
USS JOHN HANCOCK (DD-981)	09/26/89-09/26/90	To Be Determined		
USS VREELAND (FF-1068)	02/01/89-09/05/89	Metro Machine Works	10/27/88	$ 6.5M
West Coast				
USS HALSEY (CG-23)	03/20/89-03/23/90	To Be Determined		
USS FOX (CG-33)	09/30/89-09/30/90	To Be Determined		
USS O'BRIEN (DD-975)	11/14/88-11/17/89	SW Marine	06/29/88	$22.0M
USS CALLAGHAN (DDG-994)	08/14/89-08/17/90	To Be Determined		
USS CHANDLER (DDG-996)	07/21/89-07/27/90	To Be Determined		
USS REASONER (FF-1063)	01/09/89-09/08/89	NASSCO	09/28/88	$ 7.9M
USS KIRK (FF-1087)	07/10/89-03/09/90	To Be Determined		
		EDSRA (Surface Ships)		
East Coast				
USS OLIVER PERRY (FFG-7)	09/29/89-07/27/90	To Be Determined		
USS ESTOCIN (FFG-15)	09/18/89-07/18/90	To Be Determined		
		DSRAS (Surface Ships)		
East Coast				
USS EMORY S. LAND (AS-39)	01/18/89-05/18/89	Norship Co	12/01/88	$11.4M
		SRAS (Surface Ships)		
East Coast				
USS CLIFTON SPRAGUE (FFG-16)	03/13/89-05/12/89	G. Marine Diesel	02/24/89	$ 2.5M
West Coast				
USS BADGER (FFG-1071)	04/24/89-06/30/89	To Be Determined		
USS VANDERGRIFT (FFG-48)	04/17/89-07/21/89	To Be Determined		

TAB A

FY 89 PUBLIC/PRIVATE COMPETITION AVAILABILITIES (Continued)

Ship & Hull	Avail Dates	Repair Activity	Award/Assignment Date	Award/Assignment Price
		ERP (Submarines)		
East Coast				
USS HENRY L. STIMSON (SSBN-655)	FY 89 - FY 89	Charleston NSY	04/15/88	$10.1M
USS MARIANO G. VALLEJO (SSBN-658)	FY 89 - FY 89	Charleston NSY	04/15/88	$ 9.6M
		DSRAS (Submarines)		
East Coast				
*USS PARGO (SSN-650)	07/31/89-10/02/89	Charleston NSY	TBD	TBD
USS CINCINNATI (SSN-693)	08/01/89-10/12/89	Norfolk NSY	09/30/88	$ 9.3M
**USS MINN/ST PAUL (SSN-708)	02/15/89-04/28/89	Norfolk NSY	08/24/88	TBD

* Assigned - No Bids
** Assigned - No Responsive Bids

TAB A

OVERHAULS, SRA'S, PMA'S, PUBLIC/PRIVATE

Question. Mr. Secretary, provide for the record a list of all overhauls, SRAs, PMAs, public and private, you will put out for bid on all coasts in FY 1990, also providing the names of vessels and estimated dates for the scheduled work. Please identify which are public, and which are private yard opportunities. In addition, indicate which will be coastwide.

Answer. The requested list follows. Final decisions on which will be bid private and which will be bid public/private are still pending and will not be available until May 1989.

FY 90 PRIVATE AND PUBLIC/PRIVATE CANDIDATE AVAILABILITIES

Hull Type	Hull No	Name	FLT	FY	Avail	Start	End	OH SS	Solic Area
AE	27	BUTTE	A	90	DPMA	19900115	19900515	SPKYN	HPA
LST	1194	LA MOURE CTY	A	90	DPMA	19900301	19900701	SPORT	HPA
LSD	41	WHIDBEY ISLAND	A	90	DPMA	19891024	19900224	SPORT	HPA
LST	1197	BARNSTABLE CTY	A	90	DPMA	19900709	19901109	SPORT	HPA
AOE	3	SEATTLE	A	90	DPMA	19900612	19901012	SPORT	HPA
LST	1192	SPARTANBURG CTY	A	90	DPMA	19900116	19900516	SPORT	HPA
AFS	6	SAN DIEGO	A	90	DPMA	19900416	19900816	SPORT	HPA
FF	1096	VALDEZ	A	90	DPMF	19900314	19901213	SBOST	HPA
ARS	40	HOIST	A	90	DPMF	19900122	19900422	SPORT	HPA
AO	19	YOSEMITE	A	90	DPMF	19900624	19901024	TBD	CWA
SSN	709	HYMAN RICKOVER	A	90	DSPA	19891015	19891212	NNSY	N/A
SSN	606	TINOSA	A	90	DSRA	19900305	19900505	PTSMH	N/A
SSN	614	GREENLING	A	90	DSRA	19900103	19900303	PTSMH	N/A
MSO	511	AFFRAY	A	90	DSRA	19900313	19900513	SBOST	HPA
CV	59	FORRESTAL	A	90	DSRA	19900514	19900730	SJACK	HPA
FFG	26	GALLERY	A	90	DSRA	19900930	19910130	SJACK	HPA
MSO	446	FORTIFY	A	90	DSRA	19900404	19900804	SPORT	HPA
ASR	13	KITTIWAKE	A	90	DSRA	19900116	19900416	SPORT	HPA
PHM	2	HERCULES	A	90	DSRA	19900820	19901214	TBD	HPA
SSN	661	LAPON	A	90	DSRA	19900529	19900730	TBD	N/A
SSN	719	PROVIDENCE	A	90	DSRA	19891101	19900112	TBD	N/A
SSN	638	WHALE	A	90	DSRA	19900420	19900619	TBD	N/A
SSN	720	PITTSBURGH	A	90	DSRA	19900904	19901103	TBD	N/A
SSN	723	OKLAHOMA CITY	A	90	DSRA	19900801	19901001	TBD	N/A
MSO	441	EXULTANT	A	90	DSRA	19900314	19900614	TBD	ESA
SSN	663	HAMMERHEAD	A	90	DSRA	19900402	19900602	TBD	N/A
SSN	673	FLYING FISH	A	90	DSRA	19900801	19901001	TBD	N/A
SSN	694	GROTON	A	90	DSRA	19900228	19900428	TBD	N/A
SSN	710	AUGUSTA	A	90	DSRA	19900108	19900309	TBD	N/A
SSN	611	JOHN MARSHALL	A	90	DSRA	19900108	19900308	TBD	N/A
FFG	42	KLAKRING	A	90	DSRA	19900115	19900615	TBD	ESA
PHM	4	AQUILA	A	90	DSRA	19900410	19900810	TBD	HPA
MCM	1	AVENGER	A	90	DSRA	19900603	19900903	TBD	ESA
SSBN	657	FRANCIS S. KEY	A	90	ERP	00/00/00	00/00/00	CNSY	N/A
SSBN	627	JAMES MADISON	A	90	ERP	00/00/00	00/00/00	CNSY	N/A
SSBN	632	VON STEUBEN	A	90	ERP	00/00/00	00/00/00	CNSY	N/A
SSBN	656	G. W. CARVER	A	90	ERP	00/00/00	00/00/00	PTSMH	N/A
SSBN	633	CASIMIR PULASKI	A	90	ERP	00/00/00	00/00/00	TBD	N/A
SSBN	616	LAFAYETTE	A	90	ERP	00/00/00	00/00/00	TBD	N/A
FFG	11	CLARK	A	90	ESRA	19900316	19910130	TBD	CWA
LPH	7	GUADALCANAL	A	90	PMA	19900312	19900712	SPORT	HPA
AFS	2	SYLVANIA	A	90	PMA	19891201	19900315	SPORT	HPA
LPD	14	TRENTON	A	90	PMA	19900423	19900723	SPORT	HPA
LSD	38	PENSACOLA	A	90	PMA	19900117	19900417	SPORT	HPA
LPD	12	SHREVEPORT	A	90	PMA	19900119	19900419	SPORT	HPA
AOE	4	DETROIT	A	90	PMA	19900115	19900515	SPORT	HPA
AOR	2	MILWAUKEE	A	90	PMA	19900924	19901224	SPORT	HPA
FF	1072	BLAKELY	A	90	PMF	19900508	19900803	SPKYN	HPA

TAB A

FY 90 PRIVATE AND PUBLIC/PRIVATE CANDIDATE AVAILABILITIES (Continued)

Hull Type	Hull No	Name	FLT	FY	Avail	Start	End	OH SS	Solic Area
ATF	160	PAPAGO	A	90	PMF	19900921	19901204	SPORT	HPA
ARS	53	GRAPPLE	A	90	PMF	19900515	19900715	SPORT	HPA
ARS	8	PRESERVER	A	90	PMF	19900806	19901004	SPORT	HPA
ATF	159	PAIUTE	A	90	PMF	19900625	19900907	SPORT	HPA
LST	1190	BOULDER	A	90	PMF	19900410	19900710	SPORT	HPA
AKS	51	GRASP	A	90	PMF	19900711	19900911	SPORT	HPA
DDG	23	R. E. BYRD	A	90	PMF	19900215	19900515	SPORT	HPA
MCM	5	GUARDIAN	A	90	PSA	19900530	19900830	SBOST	HPA
MCM	2	DEFENDER	A	90	PSA	19891031	19900131	SPORT	HPA
LSD	46	TORTUGA	A	90	PSA	19900315	19900515	SPORT	HPA
AD	43	CAPE COD	P	90	PMF	19900219	19900420	SSD	HPA
FF	1037	BRONSTEIN	P	90	PMF	19900205	19900512	SSD	HPA
AR	8	JASON	P	90	PMF	19891113	19900126	SSD	HPA
DDG	24	WADDELL	P	90	PMF	19900319	19900615	SSD	HPA
LPH	11	NEW ORLEANS	P	90	PMF	19891204	19900324	SSD	HPA
AFS	1	MARS	P	90	PMF	19891023	19900209	SSF	HPA
AE	22	MAUNA KEA	P	90	PMF	19900910	19901210	SSF	HPA
AOR	3	KANSAS CITY	P	90	PMF	19900212	19900514	SSF	HPA
AOR	1	WICHITA	P	90	PMF	19900716	19901015	SSF	HPA
AD	37	SAMUEL GOMPERS	P	90	PMF	19900806	19901015	SSF	HPA
FF	1054	GRAY	P	90	PMF	19900305	19900629	TBD	CWA
FF	1060	LANG	P	90	PMF	19900305	19900601	TBD	CWA
MCM	4	CHAMPION	P	90	PSA	19900827	19901130	SSF	HPA
CG	21	GRIDLEY	P	90	ROH	19900122	19910222	TBD	CWA
CG	32	W.H. STANDLEY	P	90	ROH	19900604	19910607	TBD	CWA
DD	964	PAUL FOSTER	P	90	SRA	19891023	19900126	SLB	HPA
FF	1064	LOCKWOOD	P	90	SRA	19891002	19891201	SLB	HPA
FF	1065	STEIN	P	90	SRA	19900813	19901012	SSD	HPA
FF	1083	COOK	P	90	SRA	19891105	19900116	SSD	HPA
DD	992	FLETCHER	P	90	SRA	19900108	19900406	SSD	HPA
DD	966	HEWITT	P	90	SRA	19900507	19900706	SSD	HPA
DD	965	KINKAID	P	90	SRA	19900122	19900330	SSD	HPA
CGN	35	TRUXTON	P	90	SRA	19900313	19901116	SSD	HPA
CG	22	ENGLAND	P	90	SRA	19891023	19891222	SSD	HPA
CG	16	LEAHY	P	90	SRA	19900212	19900413	SD	HPA
FFG	25	COPELAND	P	90	SRA	19900618	19900817	SSD	HPA
FFG	27	TISDALE	P	90	SRA	19900409	19900615	SSD	HPA
FF	1086	BREWTON	P	90	SRA	19891009	19891222	SSDPH	HPA
FFG	23	L.B. PULLER	P	90	SRA	19900308	19905009	TBD	CWA

Legend
FLT: A- Atlantic
P- Pacific

Solicitation Area:
HPA - Homeport Area
CWA - Coastwide Area
ESA - Extended Solicitation Area
N/A - Competed coastwide but work will be performed in the homeport.

TAB A

NEW THREAT UPGRADE OVERHAUL SCHEDULE

Question. Mr. Secretary, provide for the record a complete schedule, including hull names, and coast, for the New Threat Upgrade overhauls for FY 90 as well as the outyears. Please include whether or not the Navy intends to compete each ship.

Answer.

NTU ROH SCHEDULE FOR FISCAL YEAR 1990 AND OUTYEARS

Hull	Coast	Availability	Competition
U.S.S. Gridley (CG-21)	West	01/22/90-02/22/91	PvsP.
U.S.S. Reeves (CG-24)	West	01/10/91-02/10/92	PvsP.
U.S.S. Belknap (CG-26)	East	10/20/92-11/20/93	PvsP.
U.S.S. J. Daniels (CG-27)	East	11/13/90-12/13/91	PvsP.
U.S.S. Wainwright (CG-28)	East	07/17/90-08/17/91	PvsP.
U.S.S. Sterett (CG-31)	West	06/10/91-01/19/92	PvsP.
U.S.S. Standley (CG-32)	West	06/04/90-07/04/91	PvsP.
U.S.S. California (CGN-36)	West	02/08/90-10/11/91	No.
U.S.S. Mississippi (CGN-40)	East	10/15/90-07/15/91	No.
U.S.S. South Carolina (CGN-37)	East	04/01/91-01/31/93	No.
U.S.S. Long Beach (CGN-9)	West	10/07/91-10/06/92	No.
U.S.S. Texas (CGN-39)	West	04/19/92-10/15/93	No.
U.S.S. Virginia (CGN-38)	East	03/03/93-01/15/95	No.

Note.—PvsP: Public versus Private Competition. No: NTU overhauls on nuclear powered ships will be assigned to qualified public yards and therefore will not be competed.

FRIGATE RETIREMENT STATUS

Question. Mr. Secretary, please provide for the record the current status of the 16 frigates that were to be retired? Please include the projected homeport for each frigate and the cost of the retirement program by ship.

Answer. As shown in the following matrix, the 16 frigates were offered for lease to various allies. The Pakistan Navy (PN) has leased eight of these vessels, two of which are already in Pakistan. The remaining six will sail to Pakistan by the end of June 1989.

Four vessels (indicated in matrix) have been accepted for lease by Brazil. It is planned that the three inactivated vessels will be reactivated for Brazil (at their cost) and the USS *Albert David* (FF 1050) will be turned over directly to Brazil.

The remaining four vessels have been offered for lease to Turkey but not yet accepted.

The average cost to deactivate one of these vessels is $700,000.

17 Mar 89

FF/FFG TURNOVER MATRIX

COAST	SHIP	PROPOSED COUNTRY	DECON DATE/LOC	PCS ORDERS	LAST ROH	INSURV	REMARKS
	FY-88						
P	BROOKE (FFG 1)	PAKISTAN	DECOMMED - SD	NA	1981	COMPLETE	PNS KHAIBAR
P	SAMPLE (FF 1048)	BRAZIL	INACT PEARL	NA	1984	COMPLETE	
L	TALBOT (FFG 4)	PAKISTAN	DECOMMED - CHASN	NA	1983	COMPLETE	
L	PAGE (FFG 5)	PAKISTAN	DECOMMED - CHASN	NA	1986	COMPLETE	PNS TABUK
L	EDWARD MCDONNELL (FF 1043)	TURKEY	INACT PHIL	NA	1981	COMPLETE	
P	BRADLEY (FF 1041)	BRAZIL	INACT PEARL	NA	1984	COMPLETE	
P	RAMSEY (FFG 2)	TURKEY	INACT BREM	NA	1984	COMPLETE	
P	SCHOFIELD (FFG 3)	TURKEY	INACT BREM	NA	1981	COMPLETE	
	FY-89						
P	DAVIDSON (FF 1045)	BRAZIL	INACT PEARL	Y	1988 MAY	COMPLETE	
L	FURER (FFG 6)	PAKISTAN	ARRIVED PAK 15 MAR	Y	1988 JUN	WAIVED	PNS BADR
L	GARCIA (FF 1040)	PAKISTAN	ARRIVED PAK 15 MAR	Y	1988 OCT	WAIVED	PNS SAIF
L	KOELSCH (FF 1049)	PAKISTAN	31 MAY 89/CHASN	Y	1989 MAR	WAIVED	
P	O'CALLAHAN (FF 1051)	PAKISTAN	DECOMMED - SD	Y	1987 DEC	COMPLETE	PNS ASLAT
L	BRUMBY (FF 1044)	PAKISTAN	31 MAR 89/CHASN	Y	1988 OCT	WAIVED	PNS HARBAH
L	VOGE (FF 1047)	TURKEY*	AUG 89/MAYPORT	N	1983	22 MAY 89	
P	ALBERT DAVID (FF 1050)	BRAZIL	SEP 89/SD	N	1987 DEC	JUN 89	POSS HOT TRANSFER

SHIP	TURNOVER SCHEDULE	CURRENT CNO SAIL DATE	REVISED SAIL DATE	FROM
EX-FURER/GARCIA	COMPLETE	SAILED 6 FEB 89	N/A	CHASN
EX-OCALLAHAN/BROOKE	COMPLETE	15 MAR 89	27 MAR 89	SD
USS BRUMBY/EX-PAGE	31 MAR 89	5 APR 89	21 APR 89	CHASN
USS KOELSCH/EX-TALBOT	31 MAY 89	5 JUN 89	19 JUN 89	CHASN
EX-HECTOR	NOV 89	NOV 89	NOV 89	SUBIC

*TURKEY HAS NOT YET ACCEPTED OPPORTUNITY TO LEASE FOUR SHIPS AND THEREFORE VOGE WILL NOT BE A HOT TRANSFER.

FIXED PRICE CONTRACTS

Question. Mr. Secretary, the RFPs for NTU packages on the West Coast for FY 1989 call for a Firm-Price bid. Is this type of contract being used for all private sector NTUs?

Answer. The four FY 1989 and future NTU overhauls are being planned as Firm Fixed-Price Contracts.

Question. Mr. Secretary, was a Firm Fixed-Price used on the USS *R.K. Turner* that is being overhauled by Ingalls Shipyard?

Answer. No, a Cost Plus Award Fee Contract was used.

Question. Mr. Secretary, if Firm Fixed-Price was used in the USS *R.K. Turner,* what lessons have you learned on the USS *R.K. Turner* that call for the change in RFP?

Answer. The USS *R.K. Turner* NTU overhaul was performed as a cost plus award fee contract. Revisions, changes and recommendations concerning the work package and overhaul of the USS *R.K. Turner* and other CG/DDG NTU overhauls previously performed have been incorporated into the specification package for those CGs and DDGs that are to be competed as public/private procurements. Consequently, these overhauls are now appropriate for a FFP contract.

Question. Mr. Secretary, it is in the Government's best interest to use Fixed-Price Contracts when the scope of the work and risks involved are not known to both the Navy and the contractor?

Answer. No, it is not; however, in the case of the FY 1989 NTU overhauls, the scope of work and risks involved are adequately known so that a Firm Fixed-Price Contract is appropriate. No contractor raised the issue during the time allowed for bidder's questions on NTU RFP's issued to date.

Question. Mr. Secretary, an amendment to the RFP gives the Government the right to use Government employees in the contractor's yard for new or growth work without trying to negotiate any change in the contractor's scope of work. This makes me question whether the Navy actually knows the scope of work involved. Would you agree with that assessment?

Answer. Any new or growth work affecting the scope of work in the awarded contract bears no relation to the use of Government employees. Historically, the Navy has always reserved the right to use third party employees. The NTU clause merely clarifies the circumstances when Government employees might be used. Where possible, the prime contractor will be given the opportunity to propose on new or growth work. However, where a fair and reasonable price cannot be negotiated or where the Government has already established a "team" to perform specific work (i.e., Tiger Team), then Government employees can be used to accomplish the specific work identified.

GOVERNMENT EMPLOYEES

Question. Mr. Secretary, has the Navy ever sent Government employees into a private shipyard under a ship repair contract?

Answer. Yes. The Navy sends Government employees into private shipyards to perform Administering Contracting Office (ACO) functions. The Supervisor of Shipbuilding, Conversion and Repair (SUPSHIP) employees are continually on site in private shipyards overseeing the contractor's performance on Navy shipbuilding and repair contracts. Also, Navy Tiger teams have historically gone into private shipyards to effect a specific ShipAlt or OrdAlt on a given ship or complex combat system. Their work is performed concurrently with the contractor's employees work efforts.

Question. Mr. Secretary, who would be responsible for an injury to a Government employee? Wouldn't this practice raise serious questions with respect to liability and split responsibility for work completion?

Answer. Our review indicates all private ship repair contractors are required to insure for injury to third parties. Claims regarding liability will be determined in much the same manner as any other liability claim. Each would be adjudicated on its own merit. Split repsonsibility of work is not an issue because work by Government employees is required to be accomplished on a non-interference basis and normally separate from contract work.

COST DIFFERENTIAL

Question. Mr. Secretary, the Navy has used a 4.1 percent cost differential factor between the public and private shipyards in the RFP (.145 multiple factor for West Coast public yards, .1018 for West Coast private yards=4.1 percent differential). How did the Navy derive the cost comparability factors? (A recent GAO report on Navy maintenance in March of 1988 cited an 8 percent differential.)

Answer. The FY 1989 Authorization Act directed that the FY 1989 Public/Private Awards be on the basis of a cost comparability analysis. Cost estimates for cost elements such as Facilities Depreciation and Civilian Retirement (Public Sector) and SUPSHIP oversight costs and Civilian Retirement (Private Sector) for the East and West Coast were developed and used to calculate composite cost comparability factors. These composite coastwide factors were placed in the RFP and will be used to perform the comparability analysis.

MANDAY RATES

Question. Mr. Secretary, what is the standard manday rate at each of the Navy's shipyards?

Answer. There is no standard manday rate. There are different stabilized rates for different types of work performed in the naval shipyards. The following are the basic program stabilized manday rates for ship repairs and alterations in FY 89:

Naval shipyard	Repairs	Alterations
Charleston	$369.76	$372.16
Long Beach	370.64	369.52
Mare Island	382.00	374.48
Norfolk	329.04	317.04
Pearl Harbor	419.12	408.88
Philadelphia	330.64	326.40
Portsmouth	304.24	322.88
Puget Sound	356.16	347.60

MINE HUNTER COASTAL PROGRAM

Question. Mr. Secretary, what is the status of the Mine Hunter Coastal (MHC) program? Please include when the second source competition will occur.

Answer. The MHC program has recently reached Milestone IIIA; as such, authority to award MHC-52 and MHC-53 was approved. The *Osprey* (MHC-51) contract was definitized on 14 February 89, and MHC-52 was awarded on 17 February 89 to Intermarine, USA of Savannah, GA. To date the construction of MHC-51 is on schedule and the program is proceeding well.

The solicitation for MHC-53 will be released this spring, with award planned for the summer of 1989. The competitive award of MHC-53 will result in the selection of the second source for the program.

Question. Mr. Secretary, the Navy has previously stated that two of the new MHC's will be homeported in Astoria, Oregon. Would you project when that might occur?

Answer. The latest homeporting schedule calls for MHC-52 and MHC-55 to be homeported in Astoria, Oregon. Proposed delivery dates for these two ships are May 1992 and September 1993 respectively. Best estimates for arrival in Astoria would be November 1992 and March 1994 respectively.

AUTOMATED DATA PROCESSING PROCUREMENT

Question. Mr. Secretary, we are aware of the investigations of the Navy by the DOD Inspector General and the General Accounting Office into the practices of the Navy in awarding automated data processing contracts. What steps is the Navy taking to provide equal access to all vendors, IBM and the so-called IBM compatible industry?

Answer. The Navy remains committed to fair and equal procurement practices. Our policy is to state our ADP requirements as functionally as possible so that maximum practical competition can be obtained. This policy provides the best technical solutions at the lowest possible prices. Whenever time permits, we send draft specifications to industry and invite comments from perspective offerers. Vendor comments are reviewed and appropriate changes made before the RFP is released to industry.

We use a formal source-selection process to ensure fairness in the procurement process. A formally appointed oversight body reviews and approves the selection/evaluation plan and the request for proposals before the vendor solicitation is released to industry. After industry proposals are received and evaluated, the oversight body reviews the evaluation findings and recommends a contractual source to the source-selection authority. This source-selection authority, an independent senior official, then makes the final decision on the selection of a vendor.

The Under Secretary of the Navy has just tasked two flag officers, the Director, Department of the Navy, Information Resources Management and the Navy Competition Advocate, to examine recent allegations from selected vendors concerning our ADP procurement practices. I expect to receive results of their review in

May and will take any actions deemed necessary based on this review.

Question. Mr. Secretary, the IBM 370 architecture is the industry standard. Of the Navy ADP business awarded, including prime and subcontracts, how much of the 370 architecture business is IBM's versus its compatible competitors?

Answer. The Navy does not collect the specific data requested. The Navy complies with the Federal Acquisition Regulations (FAR) through the Federal Information Resources Management Regulation (FIRMR). The individual contracting action report (DoD form 350) in the DoD Federal Acquisition Regulations Supplement does not require information on what equipment the contractor delivered or who the subcontractors are and what equipment they deliver. The equipment configurations are of course listed in the contract; however, without going through every ADP contract awarded throughout the Navy, that information is not available.

At this stage of preliminary research, our internal (unofficial) database depicting actually installed Central Processing Units (CPU's) at Navy sites shows that most of the CPU's are not IBM or IBM compatible. These statistics are shown at attachment A which follows. Please note, that this is CPU's only and does not reflect the peripheral distribution among vendors.

ATTACHMENT A

	Actual inventory		Inventory since 1984	
	CPU (percent)	Cost (millions)	CPU (percent)	Cost (millions)
Large CPU's over $1.5 million:				
IBM	18 (24)	$75 (29)	11 (28)	$47 (36)
IBM compatible	4 (5)	13 (5)	3 (8)	11 (9)
Other	54 (71)	167 (66)	25 (64)	67 (55)
Medium CPU's $300,000 to $1,500,000:				
IBM	45 (8)	94 (17)	33 (14)	60 (24)
IBM compatible	9 (2)	19 (3)	7 (3)	15 (6)
Other	491 (90)	434 (80)	197 (83)	171 (70)

[CLERK'S NOTE.—End of questions submitted by Mr. AuCoin.]

Mr. MURTHA. The time of the gentleman has expired.

The gentleman from Ohio, Mr. Miller.

PILOT RETENTION

Mr. MILLER. Thank you, Mr. Chairman.

Gentlemen, yesterday we heard from the Air Force and one of their areas of concern was pilot retention. I understand from the statements that you have submitted, and I looked them over rather hurriedly, but I see, Admiral, that you say we have a current shortage of approximately 1,500 mid-grade pilots, up from 1,100 last year. This was a concern of the Air Force.

General Gray, you say we have been able to keep the numbers we need. Somehow you are doing better than the Air Force and the Navy as far as pilot retention is concerned.

General GRAY. Yes.

Mr. MILLER. Can you give us a reason as to why?

General **Gray**. Mr. Congressman, yes, first I would like your permission to really answer that in detail for the record because we have studied this very carefully. We responded to a similar question from Mr. Taft last year during the Defense Resources Board and the like.

I think you have to have the total package in front of you. If I may, I would answer that for the record. But up front I would say that in our case, first they are Marine officers, and then they are Naval pilots. We have been able to attract and retain the type of people we need. In fact, in my first year as your Commandant, I was very concerned that 83 percent of the young pilots who desired to stay in the Marine Corps by augmenting into the regular service, were turned down because we didn't have boat spaces for them. So we have gone back and looked at this and raised the percentage for both air and ground closer to the 50 percent mark; about 46 percent, as opposed to 21 percent.

We have looked at this again very, very carefully as has the Department of the Navy with respect to—the length of time that we would require. As you know, the different services have different times. I have, for example, recommended to the Secretary a five-and-a-half-year period for your Marines. We are still looking at that. So I think the answer to your question has to do with the leadership, training, and the opportunity for challenge.

In my own view, pilots want to fly and it comes back in part to the flight-hour situation that the Chairman mentioned earlier. Everybody that knows anything about this in the sea service will tell you pilots have got to fly at least 25 hours per month to maintain safety, readiness, and preparedness. We already operate some units at lower levels than that. As alluded earlier, the Marine Corps had the finest record in history last year because I guess we are doing it right.

So, the potential, the challenge, the desire to be among the best, I think that has a great deal to do with retention.

To me, it is the flight pay that really ought to be increased over time. It is more hazardous to fly than it is to walk on the ground.

We ought to give thought to increasing that over time with the cost of living. But, that is my personal view.

I think we have to keep the challenge. You have got to provide some opportunity to look to the future. Any officer when he reaches that five, six, seven year bench mark, has to take a look at where he is. He has to look at the family situation. We would expect that. We encourage that. I think all of that is kind of rolled up into this whole retention problem.

We are going to have to continue to have the numbers of young pilots to give us the force that the nation demands. Again, it would be I think of more use to the committee if we could give you our analysis for the record.

[The information follows:]

During this decade, the Marine Corps has had the luxury of having sufficient pilot inventory to meet our requirements, even during those periods when other services experienced pilot retention problems. Our survey shows that professional satisfaction is the major factor that keeps our pilots in the Corps. They feel they are doing something worthwhile for this country.

Our Cumulative Continuation Rates for 1982 through 1988 are shown in Table 1. The Cumulative Continuation Rate is the retention of pilots in their 6th through

11th years of commissioned service. These are the "decision" or transition years to a career status, i.e., obligated service ends and first look for selection to major takes place.

Table 1

Fiscal year:	Percent
1982	67
1983	64
1984	50
1985	40
1986	26
1987	37
1988	37

The required continuation rate is adjusted each year, based on the inventory of pilots and the projected retention of this inventory. The abnormally high retention in FY 1982 and FY 1983 was the result of several factors to include an increase in Aviation Career Incentive Pay, the advent of Aviation Officer Continuation Pay and a suppressed economy. The continuation rate of 26 percent in FY 1986 is the result of training too many pilots in the early 1980's and a large number of pilots in the inventory with regular commissions. With the current inventory of pilots from the high Pilot Training Rate (PTR) years (FY 1980–85) and our current PTR of 328, a continuation rate of approximately 40 percent is required to meet our force structure needs. A project steady state PTR of 349 for FY 1990 through FY 1994 will require a continuation rate of 42 percent to meet our needs. Table 2 shows the PTR's from FY 1979 through FY 1988:

Table 2

Fiscal year:	Percent
1979	253
1980	495
1981	504
1982	482
1983	441
1984	400
1985	385
1986	335
1987	322
1988	324

Those factors resulted in a large number of pilots who desired retention being turned away. Table 3 shows the number of pilots from FY 1982 through FY 1987 who had applied for retention, but were separated upon expiration of their active duty service obligation:

Table 3

Fiscal year:	Percent
1982	15
1983	17
1984	48
1985	100
1986	122
1987	74

Because the Marine Corps' requirements for majors and lieutenant colonels are smaller than our sister services, our required retention rate has historically been less than the other services.

The future, however, is somewhat uncertain. In recent years our pilots have flown side-by-side with Navy pilots who were receiving bonuses while the Marines were not. While I do not believe that Marine pilots fly for the money, in fact, our survey shows this not to be the case, there is a growing perception that Aviation Career Incentive Pay is losing its incentive value, and that everyone but Marines will be getting a bonus. While we know that this is not the case, and that bonuses are to be paid only to aircraft communities where there are severe shortages, the perception was, and still is there. Since 1 October 1988, a small shortfall of Marine Corps pilots has slowly developed to the point that we are now short 139 *company grade* pilots.

Although that only equates to about 5 percent of the total *company grade* pilot requirement, this decline in the pilot inventory is cause for concern, and will result in an increasing shortfall this fiscal year and beyond, unless retention is improved.

We have taken action to attempt to guide our pilot retention back to the required rates and we can do more. One of the major quality of life issues we cannot immediately correct is the complaint of insufficient medical care for dependents.

One of the actions we may have to take is to pay bonuses to those aviation communities where the shortages are predicted to be severe unless we can stem the tide. This would be a very divisive action within our officer corps and the repercussions may be counterproductive. Nonetheless, the fact that the other services are now paying even larger bonuses than before may force our hand.

We would like, instead, to see flight pay increased and indexed to inflation as the principle aviation career incentive.

Secretary BALL. If I could add to that, Congressman Miller, I want to say we do appreciate the fact Congress gave us the authority in appropriations to implement the bonus program this year. It does affect Navy and Marine pilots in different ways, and certain communities within the Navy pilot force structure, and that bonus has proven to be well worth the investment. It is one factor, as the Commandant says, among many.

I have been in a lot of ready rooms aboard carriers in the last year, and it affects different communities within the carrier air wing in different ways. But let me give you a statistic.

Of the goal that we had to sign up 660 pilots under the aviation continuation bonus program this year, just in the first two months since we executed the bonus, we have signed up 334. So it is making a difference.

Given the shortages we have in the Navy tactical carrier aviators, particularly in certain of the communities, it is going to have an effect. We will be able to report to you later in the year that it has been well worth the investment.

Mr. MILLER. Is it possible for you to give us a retention requirement that would be needed in order to maintain what you feel is necessary?

Admiral TROST. We can do that. Right now we know, for example, what our goals are for each year group as they reach that point where they have completed their obligated service and we want them to continue. We know we are well below that. We can give you that information.

I think it is important to recognize there are a number of factors which impact on retention of pilots and that bonuses and pay simply compensate for negative factors. For us, those factors vary. For all our tactical aviation communities, separation, time away from home is a major factor. In some communities the lack of command opportunity, as favorable as it may be in other aviation communities, becomes a negative factor.

In all of them, as General Gray has said, if they come home from a deployment and, because of funding constraints or because of flying in contingency operations for which we compensate out of hide, there is not sufficient money to fund the training hours they would like to fly, that is a negative factor.

They are aviators. They want to maintain their proficiency and they want to fly. There are a number of reasons for our losing people to an airline industry which is hiring more than we can train in the total military each year.

Mr. MILLER. If you can elaborate additionally on that question for the record, I would appreciate it.

[The information follows:]

The Navy calculates aviator retention using the cumulative continuation rate method. This method, which is standardized among all the services, measures the probability that an aviator entering his sixth year of service will remain in the Navy through his eleventh year of service.

In fiscal year 1988, the cumulative continuation rate of navy pilots was thirty-four percent. The required continuation rate is forty-five percent. The required continuation rate is based on the number of officers needed to fill positions as department heads in fleet squadrons. Department heads are lieutenant commanders, with eleven to thirteen years of service, who perform vitally important functions of mid-level leadership in our squadrons.

SEALIFT

Mr. MILLER. There is another concern that we have heard about in the past and that is the fact that we are doing about $778 billion worth of foreign trade at the present time and yet only about 5 percent of our trade is carried in U.S. bottoms.

This is a concern to us and I am sure is a concern to you because in case of an international problem, we would not have those cargo ships that we could fall back on.

What are we doing about it and where is it leading us?

Secretary BALL. If I might say one word and ask the CNO to say a word on that, Congressman Miller, we have had a number of studies that addressed this problem, and Congress has taken an active role certainly in itself addressing this issue and establishing the Commission on Merchant Marine to take up the issue, which most recently, within the last month, provided the President with their fourth report, a comprehensive report.

The problem is readily identified. The solutions are not. And the recommendations have been made for the National Security Council to take the lead in organizing the national sealift policy and defining our goals.

Beyond that, how do we get there, is a further area for discussion. Expenditures will make it tough on the Navy, impossible for the Navy to foot the bill. We have already invested certain funds over the last five years, significant funds, concerning those capabilities.

But the problem is larger than that. It goes beyond the scope of any one individual in the Executive Branch. It has to have a broad approach and certainly it is overdue for being resolved.

I would ask Admiral Trost to respond.

Mr. MURTHA. Let me ask Admiral Trost if he would answer for the record. I want to be sure Mr. Livingston and Mr. Sabo get a chance to ask questions in the open session.

[The information follows:]

I concur with the points made by the Secretary. The Navy has spent nearly $17 billion in maintaining our strategic sealift capability, primarily in unit equipment lift for surge requirements. But the Navy's strategic sealift programs cannot and should not be expanded to offset the projected decline of the U.S. commercial containership fleet needed to sustain our forces overseas. This intermodal fleet is far too complex to maintain in reserve status. It also must be the source of manpower and industrial base required to activate and crew the reserve fleets. This is an issue of national proportions; and, a National Sealift Policy, implemented by an interagency group of the National Security Council, is the appropriate approach at the appropriate level.

Mr. **Miller**. I have just one more that would take just two minutes.

Mr. **Murtha**. Go ahead.

BASE CLOSURES

Mr. **Miller**. Mr. Secretary, on base realignment, you have cooperated and made recommendations as to base closures.

Secretary **Ball**. Yes.

Mr. **Miller**. How is that going to affect your operation?

Secretary **Ball**. Congressman Miller, let me say that the Navy had closed a great number of installations in the 1970s. In fact, we closed so many in the 1970s that over the course of the 1980's, we have had to reopen certain shore-support facilities a course we undertook with the support of the Congress.

The Base Closure Commission recommended certain reductions to the strategic homeporting program and recommended a couple other relatively minor actions that we can accommodate without any diminution to our mission.

We testified before Congress last year that the strategic homeporting program we put in place and the Congress supported was sound and cost effective. We made our case as best we could to the commission. They came up with a different judgment and we are prepared to deal with their recommendation.

Mr. **Miller**. On that question, Mr. Secretary, if you could elaborate for the record, I would appreciate it very much.

[The information follows:]

The Strategic Homeporting Program undertaken in 1986, was designed as the optimum way in which to base ships joining the fleet as we move toward our goal of 600 ships. Of the nine new homeports planned, the Base Realignment Closure Commission recommended the elimination of three. While the cost of relocating the fifteen affected ships to other homeports will diminish the overall savings to be attained by this proposal, we nonetheless can accommodate this change without adversely affecting the performance of our missions at sea. The Commission also proposes the closure of three additional shore facilities that are not critical to support of the fleet.

We regret the fact that authority was not provided in the law to alter the Commission's findings for it would be our recommendation not to make so significant a change to our strategic homeporting plan. However, given the procedures set forth permitting only approval or disapproval of the entire list, I recommended to the Secretary of Defense acceptance of the report of the Commission and notification of the Congress of the Secretary of Defense's support for its implementation.

Mr. **Miller**. Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Sabo.

ROTHER CASE

Mr. **Sabo**. Thank you, Mr. Chairman.

To the three of you, welcome to the subcommittee, and I would like to say a particular thank you to General Gray for the Marines' handling of the Rother case. Mr. Rother was from my district. His family lives there, and while there was some initial stumbling around, that disappeared and you and your organization proceeded to handle in a very professional manner a very tragic case.

I just wanted to say on a personal basis to you and to the Marines, thank you very much for your sensitivity and for your thoroughness in handling that very tragic case. Thank you.

General **Gray**. Thank you, sir.

Mr. **Sabo**. I have a variety of questions that I will submit for the record, one to General Gray on the heavy-lift helicopter and some other general questions for the Secretary as relates to the Navy.

[**Clerk's note**.—Questions submitted by Mr. Sabo and the answers thereto follow:]

ANTI-SATELLITE WEAPONS

Question. Your budget includes funds for development of a sea-based anti-satellite (ASAT) weapon: $94.6 million in fiscal year 1990, more than $200 million for the next two fiscal years. As you know, the House opposed testing of an Air Force ASAT weapon, until last year it was cancelled. I have a number of questions about this new proposal.

What technology will you use for the ASAT mission? Is this another kinetic energy weapon, like the Air Force system? Have you made any decisions about deployments? Which types of ships would carry the ASAT weapon? Where would they be deployed?

Answer. Starting this past January, the Navy, in concert with the Army-led Joint Program Office has launched an intense investigation into identifying the technology and resulting concepts which will meet the JCS requirements and Initial Operation Capability. At this time, it is premature to identify a specific technology. The SDIO Ground Based Interceptor Kinetic Energy technology is being considered, as well as numerous other SDIO developed technologies. The Navy's initial look at a system focused on Vertical Launch System compatibility for logistics and cost reasons. This would allow maximum utility of existing platforms, both surface and subsurface, while minimizing impact on the fleet deployments and system costs. Force structure and development options are currently under consideration.

Question. I understand that the Pentagon believes the Soviets have deployed an operational ASAT, but there have been recent press reports that the Central Intelligence Agency has concluded that the Soviets have negligible ASAT capability. Are you concerned that by developing a new ASAT system—at a time when it appears as though neither side has a true ASAT capability—we will encourage the Soviets to either end their current ASAT test ban or to develop more advanced ASATs that could threaten the Navy's satellites?"

Answer. Ignoring the Soviets' present ASAT capability would not be prudent. Soviet ASAT threats to our satellite systems could seriously impair many US warfighting capabilities. Their space surviellance capabilities have improved and continue to be upgraded. Our Navy operational commanders are increasingly concerned that the Soviets' ability to identify and target fleet assets using satellites tremendously degrades our warfighting abilities. Successful execution of our maritime strategy, at any level conflict, may well hinge on an effective US ASAT capability. To that end, the Navy has a great tactical need for an ASAT weapon system.

Question. Apparently the Army and Air Force will also have money in their budgets for ASAT systems, and DARPA has let

ASAT study contracts. SDIO is working on ASAT-capable systems. I suspect if you are opposed to ASAT deployments this might be a good system, but if you support ASATs, wouldn't it be better and more efficient to have a single service controlling the funding, the research, and the policy decisions?

Answer. The Defense Acquisition Board concluded that a multipronged approach is required to develop a national ASAT capability. The Defense Acquisition Board also established a Joint Program Office for the surface-based Kinetic Energy weapon development with the Army as the interim lead service. The Navy will provide the Deputy Program Manager. The lead service responsibility will also be reviewed at that time, as well as options for sea- and land-basing versions for final concept selection. The Air Force will be the lead service for the space surveillance and battle management system.

ADVANCED TACTICAL FIGHTER

Question. You note in your statement that you are committed to using a variant of the Air Force's Advanced Tactical Fighter (ATF). I understand that the contractors may be having trouble reaching their weight goal of 50,000 lbs. Can you tell me whether you have determined: first, what equipment you will have to add to the ATF to make it carrier-capable; second, how much those additions will weigh; third, what they will cost; and fourth, whether the Navy should remain committed to the ATF, or whether you should consider going with an improved variant of an aircraft currently in the inventory.

Answer. The CNO has confirmed the Navy's full commitment to the development of the Navy version of the Advanced Tactical Fighter. The operational requirement for a new fighter for both Air Force and Navy is in part driven by advanced Soviet capabilities and in part by the cost effectiveness of procuring a new aircraft with growth potential versus attempting to design a variant of an existing aircraft with no growth potential. Threat projections indicate that it is questionable that a follow-on variant of existing aircraft could meet the threat of the next century.

During testimony before the House Armed Services Committee, Vice Admiral Dunn, Assistant Chief of Naval Operations (Air Warfare), reiterated his strong support for joint ATF development effort.

The issue of carrier suitability normally requires structural modifications to permit launch and recovery on an aircraft carrier. Aerodynamic considerations may require a high lift system to meet carrier takeoff and landing speed requirements. Size is a design constraint for NATF due to limited space available on our carriers.

The Demonstration/Validation (DEM/VAL) process which concludes in December 1990 will provide more definitive monetary and weight figures. However, the weight additions are anticipated to be four to five thousand pounds.

In addition to costs associated exclusively with carrier suitability, there may be costs associated with additional Navy mission requirements, specifically AAAM and air-to-ground strike capability.

It would be premature to attempt to provide dollar figures at this juncture.

CH-53E HELICOPTER

Question. As you know, last year this Subcommittee added $46 million for advance procurement of the CH-53E in order to maintain the production line. I noticed you are requesting only three CH-53E's for fiscal 1990, along with a recommendation the program be terminated thereafter. Last year you stated the Marine Corps has a requirement for six squadrons of CH-53E's plus a training squadron. Will this purchase of three helicopters fulfill your requirement, or is there still a shortfall?

Answer. The Marine Corps has a minimum requirement for 191 CH-53E's. The CH-53E program, with three helicopters purchased in FY 1990, will provide 105 CH-53E's to the Marine Corps. The three CH-53E's in FY 1990 will not fulfill the Marine Corps heavy lift requirement and will leave a shortfall of 86 CH-53E's.

Question. Three aircraft per year does not appear to be an economical rate of production. Is it? What does each helicopter cost at these rates?

Answer. The procurement of 3 CH-53E's in FY 1990 is not an economical production rate. Each CH-53E will cost $20.7 million.

Question. Under ideal circumstances, how would you purchase the CH-53E's you need? Should we continue multi-year procurement? If the Marine Corps does want to increase CH-53E purchase, are there other programs that can be deferred to free-up the necessary funds?

Answer. The previous multi-year procurement of 56 CH-53E's was extremely successful and saved the government $98.2 million. Based on the demonstrated successful multi-year procurement of CH-53E's in the past, I would recommend another multi-year program beginning in FY 1990. My staff is currently researching exactly what procurement rate would best benefit the Marine Corps in capability, cost, and structure.

Currently, the Department of the Navy budget submittal represents a balanced budget. Within that budget, programs are funded to meet overall Defense objectives. I am not aware of any programs that could be deferred.

[CLERK'S NOTE.—End of questions submitted by Mr. Sabo.]

OVERALL BUDGET OUTLOOK

Mr. SABO. I am not sure I have another question but just a comment. The Chairman indicated earlier, the difficulty of our budget problem this year is in the news and to my sense it is not well understood by the public and not within the Congress, and at times my sense is, not within the Administration.

I did a little calculating this morning before I came over here and let me first indicate I think the nature of our problem this year makes our problem of a year ago look like the Summit Agreement was a sweetheart agreement between the Administration and the Congress, which in many ways it was. It was an agreement which called for very little deficit reduction in 1989 or 1988.

We had fairly generous economic assumptions made in August and September of last year. The fact is that the deficit for 1989, I think, will end up higher than that for 1988.

At the same time, as the Summit Agreement called even officially for a little reduction for 1989 over 1988, it called for very substantial reductions in 1990 and 1989. So the difficulty we face this year is many, many times more severe than what we faced a year ago. It will be much tougher to resolve.

We still have lots of numbers that don't quite fit as we look at the President's budget. Those are primarily budget authority numbers together with outlay numbers. The basic outlay framework I think we have. I made some assumptions as I looked at it. I assume that the President's figure of $14 billion in new revenues will happen, not necessarily in his fashion but in some way. I don't feel very certain about that because the President raised that $14 billion in part by cutting capital gains and claiming that raises revenue, and the Joint Tax Committee says it loses revenue, and a variety of asset sales which are not likely to happen in this Congress.

He talks about user fees which have been regularly rejected and a whole series of things which don't appear that likely. But I still assume that that money will be there in terms of meeting a budget target in some fashion.

Then I take a look at what is left to be cut in outlays and clearly the former President recommended them but they will not be what Congress does. I can't really forecast what we do, but until we do things differently, we do have a basic policy that has been adopted by the Congress and that is Gramm-Rudman-Hollings that says 50 percent of cuts come from domestic and 50 percent come from defense.

The authorship of that law does not represent the political center of the Congress. It tends to represent the more conservative sentiment of this Congress in establishing that formula.

So I took the balance of outlay cuts that are required and just simply allocated from what I think are close to being accurate figures, 50 percent domestic and 50 percent to defense. What I came up with was in outlay numbers for the 050 function, which includes this subcommittee, which includes military construction and a portion of energy and water and a little bit miscellaneous here and there, and the outlay number would be in the neighborhood of $290 billion, which is about $10 billion less in outlays than the current year.

I have no way of knowing how one translates that into a budget authority number, which is what we actually appropriate. Clearly, the problem is that budget authority is significantly less than $290 billion, if you calculate the spend out ratios.

I think that is a fair description of the problem. I don't think it is too far from where we may see budget resolutions appearing and includes optimistic assumptions on the $14 billion of revenue.

I don't know that I expect a response, but I think you should be thinking about it. If you think the numbers I suggest are generous on the domestic side, where we are doing similar outlay cuts from current services budgets, let me assure you there will be lots of subcommittee chairmen in our Committee not pleased. It clearly will be incredibly tough, a tough, tough squeeze there and we hear from a variety of other folks, some I suppose your alumni. We are hearing from the veterans about what is happening with VA medical care and a host of other folks who clearly are facing some substantial squeezes in the programs that they are facing.

So my own judgment is that unless there is political sentiment to really deal with revenue at some point maybe beyond what the President has suggested, the squeeze on DOD and on domestic programs in 1990 is going to be severe, it is going to be substantial. The judgments we and other committees make will in many ways be driven by dollars, not by fundamental policy choices.

Mr. MURTHA. I don't think you need to answer this, but I will tell you he has presented it as well as anybody I have heard at this initial stage. I think you ought to pay attention to his projections.

Mr. Livingston.

Mr. LIVINGSTON. Thank you, Mr. Chairman.

On that happy note, I will supply the response, it is a gasp. I will run through a few topics quickly because we are out of time and I wont' try to intrude further on your generous appearance today.

AIRCRAFT CARRIER FORCE STRUCTURE

Admiral Trost, I heard your response to Mr. Dicks and Mr. McDade on the question of 13 versus 15 carrier battle groups. You sold me.

But one of the arguments we will probably hear, particularly in the aftermath of what Mr. Sabo has had to say, is that by reducing to 13 and going to smaller ships, we increase mobility and decrease vulnerability of the big targets. Without going into great detail, I would appreciate if you would supply for the record a response to that argument.

Admiral TROST. We can do that.

[The information follows:]

Realistically, the Navy cannot support the current commitments with a reduction to 13 deployable aircraft carriers. Any reduction in carrier force levels only decreases mobility—carriers can only be in one place at a time. Reduction in deployable carriers will also increase vulnerability by decreasing enemy targeting decisions. With the loss of two aircraft carriers (as an example U.S.S. *Coral Sea* and U.S.S. *Midway*) in FY 1990 and without a replacement carrier in Japan, the following would occur unless current commitments are reduced:

Pacific Fleet carriers would be required to meet the 1.0 Northern Pacific presence currently maintained by U.S.S. *Midway* (three additional deployments);

Atlantic Fleet carriers would be unable to provide NATO treaty CVBG presence requirements;

Atlantic Fleet carriers would be required to assume the majority of the Western Pacific/Indian Ocean presence substantial transit costs (Suez Canal) with questionable availability of the canal during crisis;

Beginning in FY 1990, both fleets would be unable to achieve CNO personnel in homeport (PERSTEMPO) goals;

Turnaround training time for carriers and airwings would be reduced causing abbreviated training with the corresponding decrease in readiness for deploying units;

Beyond FY 1992 to sustain a carrier schedule would require indefinite deferral of major maintenance, lengthening of deployments, further reduction of turnaround training and complete scrapping of the CNO PERSTEMPO program.

In addition to the impact of not meeting commitments, people will be the largest losers in a force level reduction. Specifically, the following will probably be repeated:

When the number of deployable carriers remained at 13 from FY 1976 to 1986 (except 12 in FY 1980), retention aboard aircraft carriers lagged well behind other afloat forces. Since the FY 1985 start of the PERSTEMPO program, the gap has narrowed.

The impact of the proposed reduction will lead to reduced readiness, deferred maintenance growth, increased family separation and decreased retention.

AV-8(B) PROCUREMENT

Mr. LIVINGSTON. Second, General, also for the record, two items, first of all the multiyear procurement on the AV-8(B) question asked by Mr. Young. I want to know whether or not the current multiyear procurement profile will enable you to reach your objective on those aircraft and I would also ask you to give me an update on your evaluation on the LCACs.

General GRAY. All right, sir.

[The information follows:]

Our active force requirement for AV-8Bs is 323 aircraft. This total supports 8 squadrons of 20 aircraft, 1 training squadron and pipeline and attrition aircraft to 2005. The current AV-8B multiyear procurement ensures the acquisition of 276 aircraft; however, it still leaves the Marine Corps 47 aircraft short of its requirement. The impact of this shortfall is insufficient pipeline and attrition aircraft to support our active force structure after fiscal year 1996. The Navy requires 90 operational LCAC to provide the surface ship-to-shore mobility for the MEF & MEB amphibious force. The present acquisition objective in 107 to allow for pipeline, attrition and overhaul. Marines embarked aboard these craft in training and during our forward deployments in the Pacific and Mediterranean have returned enthusiastic endorsements of its capabilities. Forty-eight of these craft are in hand or appropriated right now. The irresistable power of amphibious operations depends in part upon the completion of this program by the Navy. For the present, I am highly satisfied with the progress made.

BIGEYE BOMB

Mr. LIVINGSTON. Finally, from the Navy, Mr. Secretary, comment on the binary bomb. We had to delay it last year and it seems to me that if we are going to go foward with chemical modernization, and if we are going to have a deterrent to the threat that seems to be building up around the rest of the world with countries like Iran, Iraq, and now Libya having a capability, that frankly frightens the heck out of me and I would hope it frightens the entire free world.

What are we going to do to counter that? Are we going to have our own capability?

Secretary BALL. Congressman Livingston, I will provide you with an update on that. I think it is quite evident as repeated Secretaries of Defense have testified before Congress, that the lack of our developing that capability runs hazards with the national security that we can ill-afford to take. We have repeatedly addressed this issue before the Congress.

[The information follows:]

Bigeye is a free fall, binary chemical bomb delivering the persistent chemical nerve agent VX. It is a multi-service development efort of USN, USAF, and Army due to reach ———. Navy is the executive service; Air Force and Army are participating services. The Army is responsible for development of binary chemicals for weapon, as well as fill and close facilities. The prime contractor is The Marquardt Corporation, Van Nuys, CA. ———. Without binary production, the United States faces unilateral chemical weapons disarmament through obsolescence.

Bigeye completed Operational Evaluation (OPEVAL) in December 1987. Four operational effectiveness issues and ten operational suitability issues were tested. Nine issues were satisfactory; four were partially resolved. One issue, relability, was unsatisfactory: ——— vice the threshold of .90. The report concludes that Bigeye is potentially operationally effective and operationally suitable.

The fiscal year 1989 Defense Authorization act reduced the DOD funding request and placed restrictions on the procurement of Bigeye. They are:

Prior year (fiscal year 1987) funding may be expended only for procurement of production configured bombs for additional operational testing and for maintaining program continuity.

The OSD Director of Test and Evaluation (DOT&E) and the Comptroller General (GAO) must certify future operational test procedures and results asccording to six specific criteria. No future funding may be obligated until this certification takes place.

Fiscal year 1989 funding of $15.0 million may be obligated for maintaining program continuity, maintaining the subcontractor base, and procuring piece parts and components.

No funding may be used for low rate initial production.

The warfighting Commanders-in-Chief clearly express their need for the Bigeye and emphasize the role of Bigeye in deterring the use of chemical agents worldwide. The deep-strike capability meets our strategic deterrence requirement. In addition, the binary system allows safe deployment, storage, and maintenance for our personnel. Binary chemical weapons are essential to maintain a credible United States chemical deterrent and retaliatory capability.

Secretary BALL. Because of the deterrent value of that capability, it has been considered to be very, very important in our overall national-security program. Often cited is the reluctance in World War II of Hitler to use certain weapons because of the deterrent capabilities of our allies. History has a number of examples why that kind of deterrent is one that we forego only at substantial risk.

Mr. LIVINGSTON. I appreciate your response. Of course a lot of people have characterized certain people as a madman, but a lot of people have characterized Mr. Qadhafi in the same term. I am not so sure he would exercise that restraint, frankly. So I would hope we seriously consider countermeasures to that capability.

Thank you for your time.

Secretary BALL. Thank you.

Mr. MURTHA. Thank you very much. The committee will adjourn until 1:30 p.m. this afternoon. We will reconvene in closed hearing.

[CLERK'S NOTE.—Questions submitted by Mr. Livingston and the answers thereto follow:]

SEALIFT AND INDUSTRIAL MOBILIZATION BASE

Question. Mr. Secretary, I am concerned about our sealift and industrial mobilization base too. But aren't these issues much bigger than our Subcommittee's and the Navy's ability to handle?

Answer. While it is true that the issues concerning sealift and the industrial mobilization base are national in scope, we have a responsibility to, whenever and wherever possible, act in such a way that our policies do not contribute to a continued erosion in capability. Navy ship construction, repair and maintenance policies have served to slow the decline of the shipbuilding industrial base. Our efforts in creating and expanding the Ready Reserve Fleet, Afloat Prepositioning Force and Maritime Prepositioning Squadrons have significantly increased this nation's sealift capability. Additionally, the Navy was the driving force in pushing for the creation of the National Sealift Policy currently under consideration at the National Security Council.

MERCHANT MARINE AND SHIPYARD BASE DECLINE

Question. The real reasons for the decline in the merchant marine and shipyard base are because of a complete lack of any coherent Federal agency and Administration wide national policy as well as no commercial work. Is this accurate? Please explain.

Answer. The difficulties being experienced by the merchant marine and shipyard industries are not confined to this country. They are global in nature and therefore cannot be attributed to any particular policy or lack thereof. Failure of U.S. shippers to have competitive access to foreign markets, excess international capacity and consequent low rates are the main culprits. Navy policies will, whenever practicable, continue to support the maintenance of an adequate shipyard base and promote the creation of a merchant marine capable of meeting our mobilization sealift needs. This requires a broader range of ships than just containerships.

Question. As I understand, the amount of Navy shipbuilding work has historically never, and will never, adequately support all of our shipyards. Is this accurate?

Answer. Yes, the size of the naval shipbuilding base will rise or fall with rising or declining naval shipbuilding production rates. The size of the overall maritime shipbuilding base depends on commercial shipbuilding and naval shipbuilding. Currently there is no commercial shipbuilding in the United States for ships over 1000 gross tons. In the past, from the mid-1960s to the early 1980s there were as many as 45 to 97 commercial ships over 1000 gross tons on order continuously in United States shipyards. The naval shipbuilding program cannot maintain this entire maritime shipbuilding base.

AMPHIBIOUS LIFT

Question. General Gray, what is your position regarding our nation's ability to execute its amphibious lift requirements for near term and long term scenarios?

Answer. Through this budget year, we have provided for an amphibious force capable of lifting a Marine Expeditionary Brigade (MEB) in each fleet as well as the forward deployed Marine Expeditionary Unit (MEU) in the 6th and 7th Fleets. Moreover, we have achieved significant upgrades in the C3, intelligence, aviation support and aviation safety for the amphibious ships. We are more ready now than in any peacetime period to conduct MEB sized amphibious operations in each fleet as a result. These amphibious operations in the near term will be conducted in the main from near shore (under 20 miles distance) launching stations. I anticipate that in the near term period, we will achieve the first stage of an over-the-horizon (in excess of 25 miles distance) amphibious operations capability. That evolution, which depends on the production of sufficient new landing craft and tilt-rotor aircraft, has become necessary to overcome the present threat.

In the long term, I hope that we will achieve the defense guidance objective of amphibious lift for the assault echelon of a Marine Expeditionary Force (MEF) and a MEB, with a concomitant over-the-horizon capability that is developed fully. This is really a reduced, fiscally-constrained goal, since the real requirement for us is the lift for a MEF assault echelon in each fleet. Only the MEF amphibious capability gives us a clear military advantage over potential adversaries, because of the combat power and operational endurance that it bears. I am confident that we can execute the necessary shipbuildng and production of aircraft and landing craft to make this force a reality in the late 1990's. If we accomplish this, we will have achieved the conventional strength and strategic flexibility that the previous administration set as its goal in the early part of this decade. The task ahead is not easy, and a reasonable priority must be assigned to amphibious forces to make it happen. It is a worthy goal from which we must not shirk.

Question. What additional assets are needed beyond what exists in the current 5 year shipbuilding plan to meet the Navy and Marine Corps' amphibious lift requirements for near term and long term scenarios?

Answer. In addition to the ships required to transport and land the assault echelons of a MEF and a MEB, amphibious operations now and in the future will require landing craft and VTOL aircraft to perform the ship-to-shore movement, naval surface fire support ships, mine countermeasures, navy support elements, aviation support and upgrades to our C3I suites.

Landing craft requirements are now being met under the Landing Craft, Air Cushion (LCAC) program. These outstanding craft have met or exceeded all their operational requirements; we are still exploring the enhanced capabilities we are achieving with this craft.

VTOL aircraft required for amphibious operations include the MV-22 tilt-rotor for the day/night, over-the-horizon vertical envelopment reach, the CH-53E helicopter for heavy lifts in the vertical assault element, and the improved night-capable version of the AV-8B Harrier for close air support in the beachhead.

Naval surface fire support requirements total four battleships and sixteen destroyers. These must have new ammunition with improved range and lethality to meet the threat and the over-the-horizon concept of operation. In the long term, we must anticipate the shift from guns to missiles and other weapons, beginning with a navalized version of the Army's MLRS.

Mine countermeasures, especially in very shallow water, have lagged in development compared to other functions of the amphibious force. We need immediate improvements in the capability of Naval Special Warfare forces to perform their doctrinal mission here. For the longer term, the Navy Rapid Shallow Water Mine Clearance System is the sole program offering solutions to the problem. We must continue our R&D here to develop improved mine countermeasures that counter the threat capabilities.

Navy support elements necessary for amphibious operations include, in addition to Navy Special Warfare units, beachmasters, amphibious construction units, and cargo handling battalions. Those remain barely adequate in number to support present day situations. For the future, we seem to be relying to a considerable extent on the Naval Reserve, and I hope that we will weigh our options carefully as our capabilities reach the required levels.

Aviation support for the landing force aviation includes the safety, operations, ordnance and maintenance facilities built into amphibious ships. We must make more rapid progress in upgrading our ships with the special equipment necessary for operations around the clock of a variety of aircraft. Special deck lighting for night vision goggle use, navigation aids, bomb and rocket servicing equipment and adequate intermediate maintenance spaces and personnel are a few of these types of upgrades that we must make in order to make full use of our amphibious capability.

Command, control, communications and intelligence equipment on the amphibious ships must be improved to meet the electronic threat, support over-the-horizon operations, interface with joint and combined forces and provide a rapid and accurate picture of the threat in and around the amphibious objective area. In effect we need to upgrade the amphibious force to battle force standards to handle basically the same types of functions.

Because amphibious operations are not conducted in a vacuum, there remain a host of other functions that are performed by Navy and other service components in a theater in support of the amphibious force. But the areas I mentioned above cover those most crucial to maintaining our amphibious edge in a most uncertain world.

Question. Your statement to the Subcommittee expresses your concern about the block obsolescence we face between the years 2000 and 2008, and the problem we will have in attaining our goals beyond the next decade. Please provide for the record specific details on the needs of the Navy and the Marine Corps in amphibious lift beyond the current 5 year shipbuilding plan and to the year 2000.

Answer. During the period FY 1996–2000, we will encounter the leading edge of the block obsolescence problem. Four of the LPH and four of the LPD class ships will retire. These represent the most capable ship types that we built in the 1960s modernization period. They are especially valuable in supporting our aviation elements so vital in amphibious operations. The critical element here to me is this: we must not falter in our LHD class construction, our only design furnishing the requisite aviation support. Any delay in LHD construction, coupled with the retirements of these LPH and LPD class ships, may cripple our amphibious force at the very moment that we have achieved the required levels of amphibious power. For this reason, I continue to oppose further slippage and reductions in the construction of the LHD class.

LIGHT ARMORED VEHICLE—ASSAULT GUN

Question. The budget request contains funds for the Marine Corps Assault Gun. Explain this request for the record.

Answer. The Light Armored Vehicle-Assault Gun (LAV–AG) is an additive system to the LAV family of vehicles which will allow the Light Armored Infantry Battalion (LAI Bn) to accomplish its mission. Its primary operational role is to enhance the LAI Bn's ability to conduct reconnaissance, security and economy of force operations. Additionally, it will enhance the LAV–25 firing capability, bunker busting/obstacle destruction, disengagement covering fire, and destruction of other light armored vehicles.

Question. Why is this important to the Marines in your Command?

Answer. The request for Light Armored Vehicle-Assault Gun (LAV–AG) is to meet a long-standing requirement for the system in the Light Armored Infantry Battalions (LAI Bn). Since the inception of the LAV program, our goal has been to provide a primary LAI Bn a direct fire support weapon system. There is no similar system within the LAI Bn. Presently, organic direct fire support is provided through the combined employment of the LAV-25 (equipped with the M242 25m, Chain Gun) and the LAV-Antitank vehicle (equipped with the TOW antitank missiles) and the Shoulder-Launched Multipurpose Assault Weapon. These systems do not individually or collectively provide the LAV-AG capability and, therefore, do not satisfy the requirement.

M1A1 TANK

Question. You are requesting funds to buy out the M1 tank over a two year period. Why did you choose to accelerate this program?

Answer. Previous funding constraints precluded the Marine Corps from procuring its full acquisition objective for the M1A1 tank. However, during the recent budget review process, the Secretary of Defense recognized the sustainability problems inherent in the previous budgeted quantities and applied additional resources to the Marine Corps for the acquisition of 476 tanks. This quantity will provide a homogeneous and viable tank force for the projected combat role of the Marine Corps.

Question. What impact does this decision have on your other Procurement, Marine Corps programs?

Answer. The M1A1 tank program represents a substantial portion of our procurement budget, and as a result, completion of some other programs had to be stretched out over a longer period of time. However, our procurement account still represents a balanced investment plan to maintain a high Marine Corps readiness posture within the constrained resources available to us.

[CLERK'S NOTE.—End of questions submitted by Mr. Livingston.]

(AFTERNOON SESSION)

INTRODUCTION

Mr. **MURTHA**. The committee will come to order.

We are now in a closed hearing and you heard earlier Mr. Sabo's dismal assessment, but I think an accurate statement as far as he is concerned, even though he is a new Member of the Budget Committee.

Those are the kinds of things that we see happening and I think some of the things you brought out in the this morning's hearing were very important to be on the open record, about the carriers and about what we lose if we are cut back as it looks like we are going to do.

MEDICAL CARE

Let me talk a little bit about your medical care. If you will give me an update, for the record, about what you are doing with the hospitals—for instance, I am getting tremendous pressure from the people that run the Veterans Committees; Congressman Sonny Montgomery, who is trying to combine the VA facilities with the military facilities.

I think that that is a good idea where it can work, but what I worry about is the fact that the Navy is in the worst shape when it comes to naval medical facilities and we sure don't have any extra money for this type of thing.

So if you will give us a little summary of where you are going and then fill it out for the record, I would appreciate it.

Secretary **BALL**. Thank you for the opportunity to speak to that issue.

First of all, as you mentioned this morning, the Navy family itself is quite a different family in many respects than it was 10, 15 years ago. The number of individuals, family members and retirees eligible for Navy health care within our system has increased some 30 percent, I believe is the figure, since 1980. At the same time, of course, we have had a hemorrhage in talent. We have lost physicians, nurses and other critical health care personnel at many facilities and find ourselves confronted with a crisis. I don't think that is an exaggeration.

We undertook, this year, a blue ribbon panel review of all aspects of our problem. It was not intended from the outset to be just another study, but rather a serious scrub of the dimensions of the problem and remedying the problem. The basic recommendations should come as no surprise to you. We have attempted to share with members of the committee our goals of reducing our dependence on the CHAMPUS program.

We have increased emphasis on medical education, and use, whenever possible of contracting with private health care providers to supplement the shortages that we face within the medical system, and with the leadership of committee, we have fenced funds and we have added billets to our medical structure that have given us additional figures within the medical system that we need.

We have not been able to recruit to meet the ambitious goals that we have set for ourselves, as the CNO mentioned this morning and that continues to be of concern, there are other innovative things that we should pershaps explore in the future on that subject. Let me amplify those comments for the record.

We do not seek to underestimate the size or scope of the problem and we are committed with the efforts of myself, the CNO, and the Vice Chief of Naval Operations to work to improve what is a serious problem.

[The information follows:]

We are taking aggressive actions to increase access to the hospitals and clinics in our system through a combination of initiatives.

Health services contracts.—Facility-specific contracts at each hospital. Also have developed emergency medicine and acute care contracts for 19 naval hospitals; these started in March and 612,000 outpatient visits are projected for fiscal year 1989. Increased admissions are an additional benefit of this contract. Nursing services, ancillary support, and family practice contracts start in late spring 1989. OB/GYN, Internal Medicine, and Surgery contracts are scheduled for fiscal year 1990.

Partnership Program.—17 naval medical facilities have 24 partnership agreements. The negotiated fees range from 50 to 85 percent of prevailing CHAMPUS rates. Increases access and saves our beneficiaries CHAMPUS co-payments and deductibles.

Navcare.—10 clinics with 336,000 outpatient visits in fiscal year 1988. Fiscal year 1989 projections are for 872,000 outpatient visits. Government-owned/contractor operated clinics planned for fiscal year 1990 will provide 50,000 additional visits.

Catchment Area Management, Charleston.—Permits use of CHAMPUS funds by local commanding officer to manage healthcare resources and increase beneficiary access to care.

Family Practice Demonstration Project.—Implementation projected for first quarter fiscal year 1990. Encourages cost-effective use of these physicians and their special skills, increases access for beneficiaries and promotes retention of these specialists. Sites are Newport, Rhode Island; Rota, Spain.

Navy/VA Sharing Agreement.—283 agreements at 36 Navy facilities. Considered a CHAMPUS cost avoidance.

All of these actions work in concert to increase the volume of quality services available to our Navy and Marine Corps families and improve the quality of the work environment of our medical department personnel. In turn, we expect to see improvements in our recruitment and retention efforts and a general revitalizing of our graduate medical education programs—the life blood of our medical system.

Mr. MURTHA. Two places that I have been concerned about, and I understand from staff that Admiral Hardisty did visit Long Beach.

Secretary BALL. Yes.

Mr. MURTHA. The staff talked to him yesterday and said the new commander there puts a priority on the situation and we will see an improvement. Also, the staff tells me at Camp Lejeune where there was a 4- or 5-hour wait, there has been a turnaround, and the wait is down substantially. At least those two areas have improved.

I hope, Mr. Secretary, you will keep on top of this and it will continue to improve.

LESSONS LEARNED FROM 1988 INCIDENTS

One other subject. Would you talk about the three incidents that we were involved in last year, the Lybian shootdown—the shootdown of the two airplanes—the Airbus shootdown, and also from the *Roberts* incident—is there anything we have learned from any of those three incidents and what are we doing to take care of it?

Admiral TROST. Beginning with *Stark* and the two missiles launched into her, probably the principal lessons learned from that event are damage control related. We found we didn't have enough of a certain type of damage control equipment aboard the ships, that we had other equipment that was inadequate to the task and that if a close-in weapon isn't turned on, it won't detect and shoot-down targets. In this case, the incidents involved a launch against one of our ships from an aircraft whose nationality was known, but an attack was unexpected. The great spinoff in the damage control area was evident in *Roberts,* which was a damage control incident, as was *Stark.* In the case of *Stark,* those people fought to save a ship which could have sunk because of fires.

We have had major improvements in damage control equipment, in addition to improved quantities of firefighting capability—both the cannisters for oxygen masks and the other kinds of equipment one would have on board to fight a fire. The introduction of a thermal imager which lets you see where the hot spots are, is another improvement in equipment.

We found that our firefighters' boots didn't do much good when the man was standing in hot water that had a burning missile motor keeping it hot. We found some of our emergency systems were melting in use. Those factors have been corrected and they were in part responsible for the successful damage control effort in the *Roberts.*

Shifting to *Roberts, Roberts* detected a mine; as a matter of fact, three mines, on the surface coming into an area, and took all the proper steps. They stopped the ship and set battle stations, buttoned the ship up as tightly as possible, disbursed damage control parties and proceeded to back through what should have been clear water.

The mine was one that he probably passed close to. The damage was very extensive. The saving of that ship was due to very well-trained people. They had been the scoring aces going through their damage control drills and education at Guantanamo Bay following commissioning.

They also did some very heads-up things. Captain Rinn had his damage control party spread out, with small groups of two or three well-trained people around the ship and nobody was cut off from the ability to take action.

The lesson learned was that even a ship that should have broken apart can be saved by people who know what they are doing. It added impetus to our damage control efforts throughout the Navy and brought to everyone's attention the importance of the job being done by the training group at Guantanamo.

The *Vincennes* incident and the shootdown of the airbus, there are lessons learned and a lot of misunderstandings among the public in general about what happened. We are criticized that the Aegis system could not detect between an Airbus and an F-14. The only capability it would have in that sense was the IFF.

The system worked as it should have. There were how many failings probably due to excitement and the fact that they could hear ordinance spattering off the hull from the small boats that were attacking the ship at the same time.

There was excitement when the ship made a high-speed turn and things started falling out of the overhead. Stowage discipline was learned.

We found that too many internal communication circuits could physically be connected on one line, adding to confusion and potential overload of the system. Too many people talking on separate circuits that were tied together. There was too much chatter on the line and it was difficult to exert discipline on that system.

We found that some of our displays could be subject to misinterpretation, so we are looking at the large-screen displays to see if the information displayed can be made less ambiguous at a time of excitement. We learned once again that good training on each individual station is essential and that even one link in a sophisticated system can cause a problem.

There was a lot of focus on IFF. That is a training issue in this case, learning how to interpret the data that was available.

There was a fair amount of discussion in the investigative report about psychological training to counter this combat stress factor. I happen to disagree with recommendations by the group because I think the best way to help combat stress is good training. Everyone in a stress situation I have ever observed gets excited. You overcome that by being well trained and having more experience. It is not a schoolbook-type thing.

Mr. MURTHA. What about the shootdown of the two fighters?

Admiral TROST. That is an interesting evolution.

First of all, the carrier in question was en route from the Central Mediterranean to the Eastern Mediterranean off the Israeli coast in international waters and well clear of the Libyan coastline.

They do fly and conduct flight operations in what is known as the Libya or Tripoli flight identification region. We divide the air navigable parts of the world into flight identification regions, and different places have responsibility to monitor and obviate interference with civil airlines flying through those areas.

When we conduct military flight operations in such a region, we notify the Flight Identification Center of the fact that we are there. That was done in this case.

As happened in the past, the Libyans were operating in the general vicinity of the coast. They did put people on alert. They scrambled airplanes into the air. Normally, their airplanes turn back either when they cross the coastline or are told or detect that one of our people have radar contact on them. In this case, they continued to come out. Our people were involved in east-west racetrack operations with an F-14 fighter cap between the carrier group and the Libyan coastline. Not that close to the Libyan coastline incidentally.

Another group that had been doing intercept work in some A-6's were running back and forth. When the two fighters in question were told they had the Libyans coming out, they turned into them. Everyone expected the Libyans to turn around. They did not. They continued to come, and as the F-14s took offsetting action to try to get off the track to come back on, the Libyans kept pointing at them, which caused our people to evaluate the threat as a potential hostile intent.

When the Libyan fighters closed and when they got well inside their own weapons range, our people did engage with Sparrows. The first two did not hit, probably because our people were low. The other guy was high, and subsequently as the Libyans continued on in, they were engaged and both were shot down.

Mr. **Murtha**. Were there any mistakes in that incident?

Admiral **Trost**. Not that I am famailiar with. People followed procedures to the T. Critics say they should have waited until they got shot at.

The pilot of the lead aircraft, the section commander, said the first missile he would have seen he knew would no longer have been attached to the airplane that shot it and it would have been too late to take action.

Mr. **Murtha**. I have always agreed with the Navy about their rules of engagement. I was very critical of the Marine Corps before the Beirut incident because I felt they were restricted, not necessarily by their own rules of engagement, but by the rules of the State Department.

A guy is sitting up here on his administrative backsides telling these guys they couldn't put ammunition in their weapons and consequently we lost all those Marines.

I think the Navy does it the right way. I still get upset when I think about the hearing we had after I came back from Beirut. Everybody was claiming we fired when we hadn't fired and they hadn't fired because they didn't believe they were authorized to fire.

I think the Navy's rules of engagement have always been clear and I hope the Marine Corps doesn't get drawn in, even though it is a political situation.

What about the grounding of the *Spruance*?

Admiral **Trost**. In closed session I will comment even though I don't want to jeopardize the investigation into it.

Mr. **Murtha**. Just put it into the record.

Admiral **Trost**. I prefer that.

[The information follows:]

The *Spruance* went aground near Andros Island in the Caribbean. The Navy commenced an immediate investigation to determine the circumstance of the grounding; and, where appropriate, disciplinary action was taken. I expect the investigation to be completed and finalized in the next 60 days.

MARINE CORPS INCIDENTS

Mr. **Murtha**. General Gray, we had two serious incidents last year; one, an action in Okinawa where we had somebody shot and killed and the incident where you lost the man in the desert.

What happened there and what action did you take?

General **Gray**. Which incident in Okinawa?

Mr. **Murtha**. Answer that for the record, General.

General **Gray**. I would like to answer both for the record really because they are rather lengthy and detailed.

In the case of the incident in Okinawa we had a weapon turned into the armory without the weapon being cleared; that is wrong and there has to be accountability. We continue to stress that. I have overhauled the way we investigate these kinds of things. We had a penchant to do what we could by means of Judge Advocate General (JAG) manual line of duty investigations. I know we have to do that for due process; that is designed to protect the individual, and ensure insurance claims are paid. We now have a system where we get to the heart of the matter and we do what must be done to maintain accountability.

In the other case, that was a tragedy of the first order. That wasn't an accident. We killed that Lance Corporal by using techniques which we won't tolerate. We never leave Marines alone, peace or war. When they do, then those Marines are out of step with the Commandant. There has been a change of command and the individual was one of my better battalion commanders; but he has been relieved. That has been punitive. I am not interested in the sergeants and lieutenants here. This was a fundamental breakdown in our maneuver style. If you don't understand what the commander wants two echelons up and two echelons down, you can't execute my warfighting philosophy.

There has to be accountability and that is different than my attack on zero-defect mentality. We can't allow zero-defect mentality in the Marine Corps. We have to prepare young non-commissioned officers and officers to deal with uncertainty. We must build confidence and incentive. That stand doesn't include doing dumb things that get people hurt or killed. What occurred was not right and we have to make sure everybody understands that.

I would like to say that something like that wouldn't happen in the future. It might, because we are dealing with the human element. Finally, it is my view that Marines on guard duty are going to be armed. If you don't need an armed Marine, you don't need a Marine. Get somebody else, because that is the way it has to be and it ties in with the rules of engagement. We live by the rules of engagement that are established by the unified commanders and the JCS, which was the case in Lebanon. However, we have a vote and I can guarantee you that the rules of engagement for future Marines deployed is going to be appropriate.

Mr. MURTHA. I appreciate that because I am convinced like you are that there was negligence in the desert and in Beirut. They had these people firing down at them and they weren't even allowed to load their weapons. They could load the weapons fast enough, but they weren't sure.

I know it is a delicate thing on land, but I still haven't gotten over that particular incident.

Please elaborate for the record on what happened in the instance of Okinawa and the desert as far as the action you took.

General GRAY. Yes, sir, Mr. Chairman.

[The information follows:]

Private First Class Mark J. Henderson and Lance Corporal Peter L. Orazio were killed on June 5, 1988, when an M-60 machine gun accidentally discharged inside a Marine Corps armory at Camp Hansen, Okinawa, Japan.

As a result of that incident, three Marines were brought to trial at general courts-martial. All three were charged with dereliction of duty and negligent homicide. One Marine was acquitted, and the other two were convicted of dereliction of duty.

There was a very thorough investigation of this incident and the conclusion is that it was clearly a matter of people who should have known better, not following established safety procedures. An M-60 machine gun was taken off of a firing line, placed on a truck, transported from the range back to Camp Hansen, and turned into the armory with a live round in the chamber. Obviously, things like that are not supposed to happen. We train our Marines in the safe operation of weapons and establish very specific safety procedures to ensure that such things do not happen.

Very briefly, let me summarize the event in this tragic case. On June 6, 1988, a group of about 90 Marines from 3rd Maintenance Battalion were firing machine guns at a range on Okinawa. One of the guns malfunctioned and was taken off the firing line. Apparently, a live round of 7.62mm ammunition was left in the chamber. Proper procedures exist for checking weapons before they are removed from the firing line, to ensure that they are safe. Those procedures were not followed. At the end of the day, the Marines boarded trucks and returned to their home base at Camp Hansen. The Marines cleaned their weapons and turned them in to their battalion armory. The machine gun which had malfunctioned was apparently not properly cleaned by Lance Corporal Orzaio. A large amount of cleaning solution was sprayed into the chamber of the M-60 machine gun involved in the incident. This may have prevented anyone from noticing that there was a round in the chamber. Witnesses stated Lance Corporal Orazio did not clear the M-60 (fire the weapon into a barrel of sand) prior to returning it to the armory. When the armorer received the weapon through the issue window of the armory, it was handed to him butt first, with the bolt pulled and locked to the rear. The armorer looked into the chamber of the M-60, but did not see a round in it. He then moved the safety to the "fire" position, pulled back the cocking handle, held it, pulled the trigger and let the bolt slide forward. Lance Corporal Orzaio was still standing in front of the issue window. The armorer, Corporal A.S. Richling, had the weapon pointed at Lance Corporal Orazio. Apparently, Corporal Richling's hand either slipped from the cocking handle, or he let the bolt go forward too hard, because a live round that had been errantly left in the chamber of the weapon discharged. The bullet struck Lance Corporal Orazio in the chest, passed through him and struck PFC Henderson in the neck. At the time, PFC Henderson was standing outside the armory door, about six feet from Orazio. Both men were mortally wounded by the same 7.62 mm round.

The investigation determined that, had existing regulations and procedures been followed, this accident would not have happened. The M-60 machine gun involved should have been cleared (checked to make sure there was not a round in the chamber) after it misfired. It should have been checked again before being put on the truck. Someone should have noticed that a round was in the chamber during the cleaning of the weapon. It should have been inspected, and cleared again before it was turned in to the armory. And lastly, in violation of the most basic of safety procedures, the armorer should not have been pointing the muzzle of the weapon toward anyone when he closed the bolt on the weapon. (The M-60 machine gun is designed to fire as the bolt is closed. The action of the bolt sliding forward causes the firing pin in the bolt to strike the primer of the round in the chamber as the bolt rotates into its closed and locked position.)

It is readily apparent that several Marines involved in this incident ignored safety regulations or procedures of which they should have been well aware. Nonetheless, additional steps have been taken to prevent a recurrence of such a tragedy. M-60 machine guns are now turned in with the bolts closed, and no mechanical action is allowed with any weapon while it is in the issue area. Additional clearing barrels have been placed inside the armory so that the armorers can safely clear weapons within the armory. A general reemphasis and reexamination of existing safety procedures was also conducted.

The other case you mentioned was the death of Lance Corporal Jason J. Rother during a Combined Arms Exercise at the Marine Corps Air Ground Combat Center, at Twentynine Palms, California, on August 30, 1988. If such a thing is possible, this was an even more tragic death.

The death of Lance Corporal Rother was not an accident. As I said in my endorsement of the investigation, "*Accidents* happen. His death didn't just happen, rather it was the culminating event of a series of acts, each consciously committed by human beings: intelligent, experienced and highly trained Marine Corps officers and noncommissioned officers. It was the certain and foreseeable result of an attitude which I intend to see erased from the (Marine) Corps. Any one who thinks they can simply drop off one of their Marines, literally or figuratively, and then not worry about him had better make an appointment with me, because that violates all my rules. That's a state of mind which contradicts every principle of concerned leadership on which we have traditionally prided ourselves."

The events leading up to Lance Corporal Rother being left behind in the desert are summarized as follows:

On the evening of August 29, 1988, the infantry battalion of which Lance Corporal Rother was a member was ordered to make a 21-mile night motor march to get into position for an early morning attack. This was going into the third day of a three-day, live-fire, Combined Arms Exercise. Lance Corporal Rother was one of a group of Marines who were selected to be placed out along the route of the motor march to guide the battalion to its destination. The Marines were equipped with small, irridescent chemical lights, and were to be placed out in pairs.

The lieutenant whom the battalion commander had placed in charge of the route guides was told to place the guides in pairs. When the group arrived at a trail intersection that was the first checkpoint, the lieutenant put Lance Corporal Rother out alone. His partner was placed about 400 yards away at the intersection of some other trails. When the convoy of vehicles moved through later that evening, a trailing vehicle was told to pick up all the guides they saw along the route. Although the lieutenant who placed the guides had been told to prepare a roster of who had been placed as route guides, he failed to do so. The battalion commander had assigned another officer, a captain, with the responsibility for picking up the guides once the convoy had moved through.

For some reason, Lance Corporal Rother was not seen and was not picked up that night. The battalion commander and his executive officer were aware that there had been some confusion in the execution of the motor march. Along part of the route their battalion had gotten mixed up with an artillery battalion that was supposed to be moving along a separate, parallel route. The lieutenant in charge of the detail even asked the battalion executive officer if anyone had been reported missing.

The exercise concluded at about 1:00 p.m. on August 30, and the battalion returned to the base camp to rest and clean up. Orders were given to account for all personnel and equipment, but Lance Corporal Rother's absence was not reported. Lance Corporal Rother's squad leader knew that Rother had be assigned to a detail, as did the platoon sergeant, platoon leader, and company commander. At the lower level, a false assumption was apparently made that Rother would be returned to his unit when he was no longer needed. There were a number of details formed at the conclusion of the exercise to clean up the training area, collect and return unused ammunition, etc.

The company commander relied upon the report of his platoons that all were present or accounted for, and incorrectly assumed that all the Marines he had provided the previous evening to be route guides had rejoined their units.

Compounding the errors of these false assumptions, Rother's platoon sergeant allowed his squad leader to leave the base without proper authorization to visit some relatives who lived in a nearby town. It was not until over 40 hours after he should have been picked up, that Rother was noticed missing at about 4:30 p.m. on September 1. It was the company armorer who reported that, although it was properly accounted for because the armory had the weapon's custody receipt card, Rother's rifle had not be turned in. As soon as Lance Corporal Rother was reported missing, the battalion commander launched a massive search effort that lasted four days.

Lance Corporal Rother's pack, helmet and flack jacket were found in the early morning hours of September 2, at the point near where had been placed as a guide. Next to the equipment was an arrow made of stones pointing back toward the area where his company had bivouacked the night before he had been placed as a guide. Using search dogs, helicopters, airplanes, vehicles and men-on-line, the area around the arrow was searched and searched again. Thermal sights and infrared devices capable of detecting a person through body heat that is given off were used at night. In the end, after four days of exhaustive searching, the search efforts resorted to passive means. Desert survival experts had already concluded that he could not have survived much beyond two days.

Another battalion from the same regiment began a training exercise shortly after that, using the same area of the base. All personnel and units in the area, both ground and air, were briefed on the circumstances of Lance Corporal Rother's disappearance, the location of the point where he was last seen, and his physical description. Over 10,000 Marines trained in the area over the next 6 weeks, and no additional signs were found.

Meanwhile, the battalion commander relieved Lance Corporal Rother's platoon leader and company commander of their duties and officially reprimanded them. The battalion commander appointed his executive officer to conduct an inquiry under the auspices of the Marine Corps Casualty Procedures Manual to determine the circumstances surrounding Rother's disappearance. When that report was forwarded to Headquarters, Marine Corps, the Commandant directed the Commanding General, Fleet Marine Force Atlantic, to conduct a formal inquiry.

In the meantime, Lance Corporal Rother's family continued to demand a renewed, active search effort. The immediate family members and Lance Corporal Rother's fiancee were flown to Twentynine Plams of October 29, aboard a Marine Corps aircraft. Media from Lance Corporal Rother's hometown of Minneapolis, and several members of the staffs of members of Congress also accompanied the family. The family was briefed on the search efforts and driven over the entire route that Lance Corporal Rother's unit had covered. This gave the family an appreciation for the immensity of the area that had been searched and the difficulty in finding an individual in such a ragged desert area. At the conclusion of their itinerary, the commanding general of the base told them that he had made plans for another search. In conjunction with over 100 desert search and rescue experts, including more than 20 search dog teams, and the local authorities, a second search was conducted the next weekend. A number of clues were found, particularly another arrow of stones and an arrow drawn in the dirt, but no signs that could be positively linked to Lance Corporal Rother.

In December, a Marine Corps captain who was also a reserve deputy in the local county sheriff's department organized a desert search training session for the county's search and rescue team that was built on the scenario of Lance Corporal Rother's disappearance. The captain had participated in the earlier two searches. On the second day of their training session, Sunday December 4, Lance Corporal Rother's skeletal remains were found in an area two miles outside the base and about a mile from Interstate 40. His remains were 17 miles from the point where he was last seen. Apparently he had walked back to where he had bivouacked, then struck out for the road. He had walked over 20 miles, still carrying his weapon. When he had been put out, he had three full canteens of water in his possession. His platoon commander said that he chose Rother because he had been dehydrated, and the route guide detail would be easier on him since it did not entail any walking. The survival experts had predicted that Lance Corporal Rother could not have gotten any farther than about eight miles from the point were he was last seen.

The investigation, which was not a death investigation under the Judge Advocate General's Manual, was completed in late December. The investigation was some 450 pages in length and covered all the aspects of what happened, what went wrong and why, and what we could do to prevent a recurrence of such a tragedy. Among his recommendations were better pre-deployment training in desert survival, additional training in desert survival/desert operations upon a unit's arrival at Twentynine Palms, and an improved Search and Rescue Plan that incorporated some of the lessons learned from the three searches. He also recommended disciplinary action for a number of those Marines involved.

In addition to the earlier relief and reprimand of the platoon leader and company commander, the battalion commander and the battalion executive officer were reprimanded and relieved of their duties. The lieutenant in charge of placing the route guides, and Lance Corporal Rother's squad leader and platoon sergeant were each tried by courts-martial and convicted of dereliction of duty. These actions are indicative of the investigating officer's finding that there was a "total breakdown" in the personnel accountability system in Rother's unit.

Copies of the investigation were sent to all generals in command of Marine Corps units and installations with instructions to incorporate its findings and conclusions in all their training and operations. Our hope is that something positive can be salvaged from this tragedy; perhaps a lesson can be learned that will prevent similar recurrences.

Finally, for number of years now, our training has been designed and conducted to prepare for maneuver-style warfare. A basic principle of this training has been the need to ensure all Marines, two echelons up and two echelons down, be thoroughly indoctrinated in the commander's intent, the mission and tasks, the scheme of maneuver, safety restrictions, and overall conduct of the exercise. If that principle had been scrupulously applied in this instance, a needless death might have been averted.

Mr. MURTHA. Mr. McDade.

SSN-21 SUBMARINE

Mr. McDADE. Thank you, Mr. Chairman.

We have a IG report on the SSN-21. We need your comments.

It is disturbing to say the least. It says that the Navy "did not make a comparison of the military worth of the SSN-21 with the Soviet threat of beyond the year 2000.

"Only 8 of the 29 planned SSN-21 submarines will encounter the 1990's Soviet threat, and then only for four of their expected 30-year life cycle." The report says to make matters worse, the design of the boat is based on the 1984 threat assessment, even though the assessments changed in 1987 and 1988. No design change to implement that was forthcoming.

What is your reaction to that IG report?

Admiral **Trost**. I would say first that my initial reaction on reading it was somewhat incredulous because it displayed to me a lack of understanding of what the intent was when we designed the SSN-21. The intent of that ship was to be as good as we could make it to ensure that it maintained the edge over any possible changes in Soviet capabilities over the years. It is a fact that the Soviet capability projected in 1984 was upgraded in 1988 and that capability was greater and achieved earlier than we expected to see. That had no bearing on the validity of the design of the SSN-21. It was designed to accommodate an even greater threat than that which we have seen and project on the best intelligence we have available and the best technical bases we have from now through the period when that ship will be in operation.

We never stop looking at ways to improve capability. In this case, we have designed a ship which should demonstrate——

Mr. **McDade**. You are very confident that even though your assessments change, that you designed beyond those threats?

Admiral **Trost**. Yes. We are designing well out into the next century.

Mr. **McDade**. You are confident that even though you have changed the assessments, you have met those threats and you are actually well beyond?

Admiral **Trost**. Yes.

Mr. **McDade**. As you know, the IG report also said that there was no mission-oriented operational effective measures and thresholds for the SSN-21. I guess he is saying that the "succcess" was being measured on an engineering rather than on an operational basis. Do you agree with that assessment? If you do not, tell us why.

Admiral **Trost**. I don't. I didn't initially because I didn't know what he was saying, since the design criteria for the ship has its emphasis on mission effectiveness, which is the ability to find, engage, and kill other submarines with an exchange ratio that leaves things favorable in your direction against the threat. That information was well documented.

It is true that also in the documentation there was considerable emphasis on such engineering parameters as quietness, speed, maximum operational effectiveness, and sensor performance. I suspect that the focus was on the latter, which for the particular meeting in question was the focus of the meeting.

The mission effectiveness has never been something that was relegated to some back seat to engineering effectiveness. The engineering effectiveness is necessary to meet the mission effectiveness. That is very clearly stated.

Mr. **McDade**. So your disagree with the report?

Admiral **Trost**. I do.

Mr. **McDade**. He says the costs crept up to $1.5 billion as opposed to a projection of $1.4 billion, and that firm cost ceilings are gone.

Admiral **Trost**. We put a Navy self-imposed cost ceiling on the lead ship and on the follow-on ships. I believe that was done in 1985 dollars. We are still within those parameters.

Mr. **McDade**. Would you state what that fixed ceiling is?

Admiral **Trost**. I believe it was $1.6 billion for the lead ship and no more than $1 billion for the 5 follow-on ships, but again in fiscal year 1985 dollars.

Mr. **McDade**. And you haven't got a problem?

Admiral **Trost**. No problem.

Mr. **McDade**. You raised the issue about the percentage of the budget, devoted to this particular activity.

According to the current budget, the SSN-21 is going to get closer to 30 percent of SCN funds than your previous testimony to commit 20 percent of your funds for SSN-21.

Admiral **Trost**. I was present when we discussed the amount to the SCN budget which might reasonably be allocated to SSNs back in 1984. We said as long as we are still in the ballpark—I thought it was 25 percent, not 20—but 20 to 30 percent of our total SCN account going to SSNs will not impact adversely on other procurement. It is not a stated ceiling either internally nor externally, nor would there be a point in putting a ceiling on it.

Mr. **McDade**. We had testimony before the committee a couple of years ago indicating that the SSN share would not rise above 20 percent of the dollars allocated to the Navy—so the testimony came here.

Admiral **Trost**. I don't know where he got it or why.

Mr. **McDade**. What is your policy?

Admiral **Trost**. We have no policy as to the maximum amount of the SCN account going to any one area. We try to maintain balance in meeting the Navy's overall requirements.

Mr. **McDade**. Does it run over 20 percent now?

Admiral **Trost**. Yes; probably 20 to 25 percent.

Mr. **McDade**. Do you perceive staying in that area?

Admiral **Trost**. It probably will, yes.

Mr. **McDade**. Look at this testimony. If you need to amplify your answer in the record to give us a feeling—because one of the benchmarks we have had here based on testimony received from the Navy is about the resources needed in the program.

If you need to amplify, do it for the record.

Admiral **Trost**. When we were at the 20 percent threshold, that was before the time when we envisioned $50 billion to $75 billion coming out of the FYDP at that time. If the percentage has gone up a little bit, 20 to 25, I don't think that is unreasonable given the amount of money that has come out of the FYDP and given the priority that we attach to this program.

The DOD IG report I don't believe dwells at any length on what happens to our overall deterrent if we allow this margin of superiority that we enjoy today over the Soviet submarine force to lapse if we fail to make the critical investments that we have to make. Among all the force balances that exist between Soviet and U.S. capabilities, I suggest this is among the most critical and it is a margin of superiority that we have to be careful about.

Mr. McDADE. No question. That is one of the reasons we were interested in going through the IG report to try to make sure that we are in sync. We share that view. We want to make sure that you continue your unparalleled record in maintaining this kind of superiority and that is the reason for us inquiring.

You have a lot of procurement dollars coming down quickly on the program. Are you concerned about too much concurrency? You don't have a ship in sea trials and your are going in for procurement, does that concern you?

Admiral TROST. It doesn't. I could be flip and say we have been building submarines successfully for a lot of years, but that doesn't answer the question.

We are building a ship whose combat system consists of components that are being tested as they are developed. We are building a ship which has had more design attention from two years than everything built before.

We have had a quarter-scale engineering model of that ship operating in a lake in Idaho for a number of years. It has more development effort in it which tends to give us confidence in the capability to successfully build and field that ship than anything we have done to date. So I have no concern.

Mr. McDADE. This committee has been one of your best supporters in achieving those goals. We see a request coming for $12 billion for 17 ships before you even have sea trials. It raises a concern about the degree of concurrency and whether or not we are going too fast in committing those procurement dollars, if your have to do backfitting, retrofitting——

Admiral TROST. I don't see that as a risk.

Mr. McDADE. Is it your professional opinion based upon your experience—tell us—if you don't see a risk, tell us why?

Admiral TROST. We have built a lot of different classes of submarines and proceeded with follow-on funding before the first one went to sea.

We have had relatively little change required in that ship. If we are building a hull, we know how to do that. If we are building a propulsion plant, we know how to do that. The combat system is new or a modification of the one now going to sea in the improved SSN-688's.

We are building a ship that is carrying more weapons than ever before, but that is nothing other than expanded capacity. There is nothing in that ship that I consider high risk that would cause the problem

Mr. McDADE. But we get testimony here about the increasingly difficult environment that they will have to work in.

We talked about the increase in the Soviet threat, quieting and the rest of it, so it is just—I guess probably for the first time here, it begins to raise questions about whether we are safe in committing all those dollars in procurement at that stage.

I take it that from your point of view, you see no problem with that.

Admiral TROST. I see no problem. I think we are safe based on our experience and the fact that we proceed cautiously. Whereas the Soviet Union puts out several classes of ships in a decade, we take two decades to design and bring one into fruition.

We are so conservative that I find it frightening on occasion. If we were to use the same philosophy, for example, we would never have funded the second Trident submarine until the first was completed.

Mr. McDade. But we keep hearing about that changing environment between the Soviets' advances and us and competition that will ensue. Maybe that 30 year life is not going to be there anymore. Maybe your are going to have to do things with even more sophistication because of the competition you are facing.

Admiral Trost. ———. One of the beauties of the design is that it has the capability to accommodate changes within the volume and stay very, very quite or get even quieter.

One of the reasons we went to a new design in lieu of the improved SSN-688 was that within the hull of the SSN-688, there was not enough room to do the further things that we know how to do to quiet the submarines more or to accommodate more weapons or improve sensor systems.

Mr. McDade. You have had these constant revisions, revisions of the threat assessments coming with increasing frequency now, it seems to me.

Admiral Trost. It is not increasing in my experience. We certainly have seen an improvement greater than we anticipated in a given period of time.

On the other hand, there are physical constraints to what they can do and their ability to catch or match what we have. I don't think that exists. I think they will train us as long as we are heads up and continue the R&D we have ongoing.

Mr. McDade. Thank you.

Thank you, Mr. Chairman.

Mr. Murtha. Mr. Dicks?

ADVANCED SUBMARINE TECHNOLOGIES

Mr. Dicks. Thank you, Mr. Chairman.

To follow up on the submarines, there has been controversies over the past several years over R&D work on advanced submarine technology beyond the SSN-21. The program has been headed by DARPA with Navy participation. Does it make sense to keep the program there or transition it to the Navy?

Admiral Trost. I have been arguing with certain Members of the Congress as well as certain members in OSD that it doesn't make sense to fragment R&D for anti-submarine warfare on the basis of what has been a stated misconfidence in the Navy's ability to do an honest job of developing the capabilities it needs, and that really is what lies at the heart of it.

We are accused of somehow or other having interests other than the country's at heart when it comes to submarine development. Therefore, some years back, we lost the money we had put into submarine R&D and the money was put into DARPA where a new independent look would be taken and somehow we would get better. We have worked very closely with DARPA. At one point we lost about a year in the research and development effort while we got organized on how DARPA would take charge of this program. We also have had requirements for the Central Intelligence Agency to become involved to make sure we had honest evaluations on what the other guy is doing vis-a-vis what we are doing.

Mr. DICKS. Wasn't there some implication raised by staffers on the Armed Services Committee that there were CIA intelligence estimates that the Navy was ignoring?

Admiral TROST. There were. Not just intelligence estimates, but that the Navy was intentionally covering up the capability of the Soviet Navy, and that the only way we could get an honest look here on the Hill was to take the Navy out of the picture. That ignored the fact that technical experts who have nothing to do with the Navy were brought in and verified the Navy's assessment of what this gentleman raised as a problem. Sometimes it is unpopular to be proven wrong and that lies behind much of that.

Mr. DICKS. Is there any way to referee this thing? Could the Center for Naval Analysis or somebody take a look at this and give a report back and say who is right and who is wrong on this one?

This is one area where we have really been successful and then to take this away from the Navy and give it to DARPA doesn't make sense to me.

Admiral TROST. There has been a look at this area taken under the auspices of the House Armed Services Committee, and our difference with them at the present time is in the way the report has been written, because it does not reflect the views of some of the technical experts precisely or accurately.

Frankly, I have been trying to build the bridges back with those members of the committee who feel that there is some reason, on the basis of comments made or rumors, that we are somehow intending to mislead people.

We have nothing to gain——

Mr. DICKS. Wasn't part of the problem that you didn't request funding and that, therefore, convinced these people that you weren't serious?

Admiral TROST. When you put the funding in your budget and lose it in the process of the review and have it shifted to someone else's line, you are disinclined to do it the second time. On one occasion we did not because we lost it the first time. I have played that game long enough to know how to save it if I could.

ANTI-SATELLITE (ASAT) PROGRAM

Mr. DICKS. We have been trying to find out about the Navy request of $95 million in fiscal year 1990 to begin development of an anti-satellite weapon. We have not been able to get briefed on this.

What are your specific program plans for this ASAT weapon?

Secretary BALL. Let me say that funding was put into the budget late during the budget deliberations pursuant to a preliminary study or a preliminary review of what sort of ASAT capability could be put to sea.

The Secretary of Defense has made no decision, final decision that I am aware of, in terms of the nature nor management of that program.

The Army has provided to the Defense Acquisition Board a proposal for a separate type of system, and this is a matter that will go before the Secretary of Defense.

Mr. **Dicks**. What is the $95 million for?

Secretary **Ball**. The $95 million is an estimate of what we could put into a sea-based ASAT capability derived from a proposal to utilize a submarine for launching, equipping it with a ground-based interceptor type booster and giving it an ASAT capability which provides certain kinds of flexibility that a land-based system would not present.

Let me ask the Admiral to comment on the design because it is very preliminary and, as I said, the Defense Acquisition Board has grappled with the issue of who would have responsibility for it.

Admiral **Trost**. I might begin with what triggered the request. We—and by we, I think I speak for my fellow chiefs—see a requirement for a United States ASAT capability. Our Navy operational commanders are concerned that the Soviets have the ability to provide surveillance and targetting against us that we cannot counter.

At the same time we place a high dependence on the information we receive from space assets, and we rely on space for many of our tactical support items such as communications and navigation.

If the other guy has the option of putting your lights out or your ears and eyes out and maintaining his, you are at a disadvantage.

We felt that an ASAT capability was essential to deter, one, the other man from knocking your things out; and secondly, if necessary, removing his capability to provide that surveillance and targeting of our own forces.

It appeared and still does appear technology would permit the development of a weapon system based on the ground-based interceptor technology, which is part of the SDI research to provide a weapon which would be launched either from a launch tube of a surface combatant or from a submarine launch tube and would provide that capability.

Mr. **Dicks**. This would be R&D money?

Admiral **Trost**. Yes, it is.

Mr. **Dicks**. Just research——

Admiral **Trost**. It would be R&D at the outset.

Secretary **Ball**. The fact that it uses some technology that is near-term technology, one of the assets—this is a relatively near-term option.

I can't give you the timeframe.

Mr. **Dicks**. Has there been a change in Soviet capability? Two years ago before this subcommittee, I asked Navy witnesses some questions about this and the concern that the Navy had about it. At the time, he said we have other capabilities with ———. Has something changed in this equation that we are not aware of?

Have you lost those capabilities or have the Soviets deployed something new and different? Because at the time, it seemed it was crude and the Navy had other means to take care of it.

Has that changed?

Admiral **Trost**. The capabilities of Soviet satellites deployed in opposition to our forces has improved. Their ASAT capability is similar to what it was when Admiral Flagherty testified. He was referring to the ability to ———.

Mr. **Dicks.** So it is a desire to have an anti-satellite weapon that is driving this rather than a specific threat——

Admiral **Trost.** It is an improving surveillance threat which we want to be able to counter in the future.

Mr. **AuCoin.** I can't hear the answer.

Admiral **Trost.** It is an improving surveillance threat, an improving capability by the Soviet Union.

General Gray reminds me they have an improved capability to put things up. They build large numbers of both launchers and satellites and have them sitting there ready to go up in a contingency situation.

We don't build spares and have nothing near their capability to put things up.

SEALIFT

Mr. **Dicks.** In your satement, you make a major mention of what we have done over the last several years in sealift capability, but isn't it true that we still have major deficiencies in this area?

General Galvin, said that his first priority concern is sealift. I know this is a matter that certainly has budgetary implications, but we also have the Bennett Commission that has looked at this.

What is the Navy trying to do about enhancing sealift capability? What is your strategy at this time?

Admiral **Trost.** From the outset, our effort has been to ensure sealift in view of a declining U.S. and allied maritime capability, which means that the necessary bottoms will not likely be available in adequate numbers in wartime.

What we have been doing and what we really put into high gear back in about 1981 was to acquire additional ships for the National Defense Reserve Fleet of the types that would be most useful to lift equipment overseas for our military forces. In the process we have gained the capability to carry out most of our POL lift. We have adequate lift now of containerized cargo. We are not capable of handling the full requirement for bulk cargo. We have developed several programs, seasheds and flat racks, for example which are items of steel equipment that give you the capability to convert cargo holds and container ship holds to bulk cargo-carrying capacity. We have purchased the eight SL–7 ships which are 30 knot-plus ships, and converted them so they can carry armor and equipment at high speed to Europe. We have purchased and have operating three squadrons of maritime prepositioned ships with equipment for marine expeditionary forces. We have at sea pre-loaded ships with oil, water and ammunition for Army and Air Force units.

We have purchased a considerable amount of over-the-beach capability to permit rapid offload of ships in undeveloped or damaged port areas, and about a year ago we transfered all the ships to the Maritime Administration that we have purchased out of hide from the Navy budget.

Mr. **Dicks.** How short are we?

When you talk about bulk cargo, when we get down to percentages of what the requirement is, how short are we?

Admiral TROST. Our current figures say we can handle 82 percent of the requirement in bulk cargo we need.

Mr. DICKS. When you say that, does that mean we are also relying on our allies?

Admiral TROST. We are relying on those ships we know will now be available. We know that as the years progress, unless we do something to turn around our maritime posture, that shortfall will increase.

Mr. DICKS. General Cassidy, in testimony before the Senate subcommittee last April, recommended three goals for improving the nation's strategic lift: doubling the share of the nation's foreign trade to 8 percent from 4 percent; boosting the prefast sealift fleet from 8 to 12 vessels; and developing a fast sealift ship called a surface effects ship.

What do you think of those three recommendations?

Admiral TROST. I think any steps that cause our commercial maritime industry to increase the number of ships available are advantageous.

Regarding the idea of increasing the SL-7's, I am not sure they are available. I thought we bought the eight that were available. Certainly if they were available, that would be a good idea.

The concept of a surface effect ship or some other fast way of getting across the ocean is intriguing to those who say, "I want to get there in a hurry and I want to take into account the fact that it takes X time to move where the equipment is and the faster you get across, the better."

The problem is that at this time we don't know how to build something that fast that doesn't require filling stations in the ocean to get there. In a time of fiscal constraint, I don't see us being able to do that. You would find many people who would disagree with me on that.

Mr. DICKS. What level of resources are we devoting in this budget to the sealift issue?

Admiral TROST. I will have to provide the details.

[The information follows:]

The Navy has submitted a budget of $498 million for sealift. It should be noted that the Department of Transportation has also budgeted $239 million for sealift, which provides for an increase in the Ready Reserve Force of nine ships, including one T-ACS, as well as for the maintenance of the entire force. The total sealift budget is therefore $737 million.

Admiral TROST. We have provided on average around a billion a year since 1981. That number has tailed off because we have completed procurement of all these assets. We are not talking about the maintenace and support types of equipment we are buying.

Mr. DICKS. Is the problem in the first few days of a major conflict? Is that where we are short? Can we get the ships that we need over a longer period of time?

Admiral TROST. The build-up of equipment early on is where the shortfall exists. That is because you can't get everything across the ocean because the transit time doesn't permit you to get it there in the time necessary. Therefore, the emphasis on prepositioned equipment——

Mr. DICKS. We see a lot of money provided for C-17 and we are doing a lot on airlift. For those of us who heard General Cassidy, it seems we are putting all the money into airlift, but the sealift side of the equation never seems to get that same level of attention.

Admiral TROST. Could I make a parochial comment? I have to my regret spent a lot of time in Washington instead of in the fleet since the fall of 1981.

When it comes to matters of sealift, we are about the only outfit putting money against it, and we did it at the expense of programs that we might have favored instead. We need more people and we need to continue to emphasize sealift. Having said that, we can never compensate for the absence of sealift in this country by buying more ships through the Navy.

Mr. DICKS. You have to do it through the merchant marine process?

Admiral TROST. Yes.

Mr. DICKS. That is doubling the merchant marine, but we will have to have a program in place that is going to attract the private sector to build these ships and have U.S-Flags to operate them?

Secretary BALL. Right.

General GRAY. We sit on this Merchant Sealift Study Group, too, but the national sealift policy has to embrace, as I believe it does, the idea that this is a national problem. For other departments or organizations to infer that the Department of the Navy has to take this on is ludicrous. If you want to move American goods and American bottoms with American crews, that goes far beyond the Secretary of the Navy's charter. This is a national deficiency and it will require a long haul to fix it. There has been a movement since the early Nixon Administration to try to do something about it. I think there is a lot of good effort going on now. I think that my colleagues in the Navy have made steady progress in achieving that capability within their resource and at the expense of amphibious and other warfighting ships. But, it is a larger problem than just the Department of the Navy.

It seems to me that if we are going to solve this, deficiency we must do it as a nation. We all have to work together. Clearly there is advanced technology. Clearly, we could do some things, as the Japanese and others have done with surface effect ships, but it takes a total commitment.

I would also say that, on the other side of the equation, lift has to be built up. We spend a lot of time criticizing about not having enough lift. What about what is needed to be lifted? A lot of people who complain about not enough lift don't have it in the barn in the first place. It is a total package here.

Mr. DICKS. Secretary Ball, without being argumentative, the Reagan Administration, as I recall, basically ended the operational differential subsidy program and various programs we had for construction and operation.

Secretary BALL. Yes.

Mr. DICKS. Aren't we going to have to go back to something like that if we are going to entice the private sector to do something in this area?

Do you think that the new administration——

Secretary BALL. I think there are going to be some incentives assembled. The Commission on the Merchant Marine came up with a profound charter program of recommendations which is a little different than some of the predecessor programs, but similar fundamentally.

The answer is yes, I think there are going to have to be some incentives. Whether or not there can be market incentives that will initially attract U.S. operators into the trades remains step one. Step two is the longer-term problem of restoring some modicum of commercial shipbuilding in this country. That is a much more complex problem.

NAVY CONTRACTING WITH SMALL/DISADVANTAGED BUSINESSES

Mr. DICKS. One of the concerns I have had expressed to me by a number of minority firms is that for some reason the Navy seems to be a hard-line attitude by some of the Navy's contractors against subcontracting with women and minority firms. I asked you this morning what is your view of this. When we have these kinds of complaints, who do we talk to in the Navy besides yourself?

Secretary BALL. We have an office that deals with small and disadvantaged businesses reporting directly to me. I met three times with the individual who runs this operation for the Navy. I am surprised to hear the complaint.

Mr. DICKS. I think it is in our region of the country. We are having a real problem.

Secretary BALL. I would like to supply our record on this source. We have made a concerted effort to improve the percentages of small and disadvantaged firms. I will surely do that and see what I can find out.

[The information follows:]

To put the Navy's progress in acquisition awards to small disadvantaged businesses (SDB) and to small women-owned concerns in perspective, it is necessary to discuss briefly both recent prime contracting and subcontracting achievements.

The Navy experienced significant growth in its prime contract awards to SDBs and to women-owned concerns during Fiscal Year (FY) 1988. Total SDB prime contract award value during this period was approximately $1.1 billion, which was an increase of some $150 million over the previous fiscal year. The total value of Navy prime contracts awarded to small women-owned firms during FY-88 exceeded $258 million, which was an increase of some $62 million over the preceding fiscal year.

Under the Department of Defense (DOD) subcontract reporting structure, the military services report only on major prime contracts which they administer, which may include contracts let by other services. Reporting includes small business and SDB subcontract awards. There is currently no separate subcontract reporting for women-owned businesses. Contract administration for most Navy contracts, pursuant to DOD procedures, is delegated to the Defense Logistics Agency. Of the 1,571 major prime contractors that reported to DOD during FY-88, 110, including universities, reported their small and disadvantaged business subcontract awards to the Navy. These contractors reported a total of $155.8 million in subcontracts to SDBs during FY-88. Recognizing that the contractor reporting mix may change, for the previous fiscal year, 92 contractors under Navy contract administration reported $135.8 million in subcontract awards to SDBs.

Major government prime contractors employ small business liaison officers to assist small and SDBs to market to their respective firms. Navy personnel assigned contract administration functions can also assist small business concerns which experience difficulty in investigating potential market opportunities with contractors under Navy contract administration cognizance.

In October 1988, the Under Secretary of Defense (Acquisition) submitted the Department of Defense plan to make progress toward the small disadvantaged business award goal established by Public Law 99-661 to the Chairman, Acquisition Policy Panel, House Armed Services Committee. The plan includes initiatives to increase subcontract awards to SDBs. The Navy participated in the development of the plan and will support its implementation.

SEALIFT

Mr. **Murtha**. On the subject of sealift. The Navy contracted to build a ship, but I don't remember exactly who you contracted with. The Merchant Maritime lent someone some money.

Mr. **Dicks**. Marine Administration.

Mr. **Murtha**. Yes. Then the Navy turned around and dumped the outfit and said, "We can lease it cheaper from somebody else." I realize you saved money, but the Merchant Marine Bank lost about $40 million, as I understand it. We are never going to get anybody to build ships if the Navy contracts with someone and then goes out and finds someone else that can lease that ship to you cheaper.

I don't remember the details, but I do remember that the Merchant Marine people were losing money.

Secretary **Ball**. I think that I recall that situation. We attempt to locate shipping at the lowest cost.

Mr. **Murtha**. I understand, but the Military Sealift Command contracted up front and here we are with that sealift we are going to have to subsidize. There is no question about that. We can't compete.

The suggestion General Cassidy made I think is an excellent suggestion. This is one of the problems I find in industry. We change the rules so often, somebody jumps in and they get burned.

The Navy probably has the biggest procurement system in the world. I know you are always looking for ways to save money, but I hope you are also looking for the long-term downside here.

Mr. Miller.

SOVIET PROPOSAL REGARDING THE PHILIPPINES

Mr. **Miller**. Thank you, Mr. Chairman. Mr. Secretary, I noticed in your statement your comments about arms control and that the proof of our competitive edge can be seen in the details of Secretary Gorbachev's proposal to reduce our advantage at sea through negotiation.

You go into a number of different items. One is the possibility of Gorbachev offering to vacate bases in exchange for us pulling out of the Philippines. It seems this is something you feel should not be negotiated. I would like to hear a little more about it.

Secretary **Ball**. Thank you, Congressman Miller. I will make a comment about that and ask the CNO to do as well.

There have been a number of initiatives coming out of the Kremlin that have been aimed squarely at the United States Navy. That should come as no surprise because the capabilities we have in our forward-deployed forces give pause to Soviet military leaders, not only in the Pacific. In my posture statement I made specific mention of the Soviet offer to exchange facilities in Cam Ranh Bay for United States bases in the Philippines, which I believe was in a recent speech Secretary Gorbachev made.

There have been proposals for zones of peace, proposals to remove naval forces from the Mediterranean, and it should come as no surprise when Foreign Minister Shevardnadze was in the Middle East he proposed we pull out of the Persian Gulf.

I think we can expect more of that in the future as the Soviets try to seize the initiative in making these proposals. This highlights the enormous leverage we get from naval forces that can operate in forward areas both in the Western Pacific, Norwegian Sea and eastern Mediterranean.

When we show our friends and allies that we stand by them and operate forces there, we show a level of forces that work, they deter, and because of that, the Soviets respond.

The CNO has made several speeches on this. I will ask him to say a word on it.

Admiral TROST. We are opposed to the recommendation made by the Soviet Union, recognizing we are a world power and dependent on the seas for economic survival while the Soviet Union is a landpower whose routes to its targets, if they have an aggressive intention, are over land.

We see that our naval capability bothers them considerably. Mr. Gorbachev, in the 3 to 4 years that he has been in office, has made a number of speeches which propose various things, all of which were intended to constrain our naval forces in operation or size, proposals such as declaring certain areas as anti-submarine warfare free zones or zones in which anti-submarine warfare aircraft would not operate. Those are zones where we routinely operate and from which we would be precluded. He proposed a zone of seas cutting off the Norwegian Sea and Bering Sea from our allied navies. But those are in his back yard.

My Soviet Navy counterpart last year proposed that all aircraft carriers and missile submarines be withdrawn from the Mediterranean. Needless to say, he doesn't have any aircraft carriers there to worry about.

Their senior military man saw our newest aircraft carrier and said it should never be used in anger. He pointed to me and said, "Your Navy is the problem. You are the threat." So we understand why they want to limit our capability. We are in fact an effective deterrent force. That bothers them. It makes me feel good.

Mr. MILLER. Do you feel you have a proper line of communication with those who would be negotiating a treaty in order to protect the Navy?

Admiral TROST. There is no negotiation in progress.

Mr. MILLER. I understand that, but you are concerned about it according to the written statement and I have heard others who are concerned about it.

When we do negotiate, if we negotiate, are you now getting over to those who would possibly be involved in those negotiations your thoughts as to how it would affect the Navy?

Admiral TROST. Absolutely and at every opportunity.

Mr. MILLER. Admiral Trost, in your statement you said we have over 100,000 men and women who are underway every day. I suppose they are steaming, that is what you mean.

Admiral TROST. They are steaming. Some 80,000 men and women are in ships which are forward deployed. The rest are in ships in training operations routinely conducted off our coasts.

STEAMING COSTS

Mr. MILLER. I can understand the need for training. The ship in many cases must be on the move. I can understand, too, that is a show of strength. But if the budget is cut, is it possible to save any appreciable amount of dollars by holding down the steaming because of the energy costs?

Admiral TROST. Let me correct that. When we say those forward deployed are steaming they are not underway all of the time; those in the Persian Gulf are underway most of the time. We have come to the level of funding requested on the basis of the following: our experience is that underway time is the time required to keep people trained to a level ready to meet forthcoming commitments or crisis situations. For those situations where ships are deployed, it is to maintain the level of presence we must maintain by our commitments.

We must take out of hide additional unplanned costs in the Gulf. Those incremental costs come at the expense usually of training operations by those fleets. There is relatively little flexibility in fuel expenditures if one is to maintain a level of readiness in the currently directed force deployments.

CONTRACTING OUT

Mr. MILLER. General Gray, you also had mentioned Marine Corps civilian employees and had a figure of some 21,000 civilian employees. That was 31 percent of supporting establishment.

Are you talking about contracting out?

General GRAY. No, sir. We have about 20,000 civilian employees that support the Marine Corps as part of our aggregate Marine Corps force. This number has remained fairly stable for a number of years, 19,000, 20,000, in that ball park. They are civilian personnel that serve on our bases that perform functions and tasks, that help the economy and the community and all that; but they also replace a Marine who is prepared to fight.

Mr. MILLER. The Marine has the training, he has the basic, let's say; could he in turn be doing some of this work that the civilians are doing?

Do you feel it is necessary to have that many civilians in order to operate and that the Marines could not take care of those positions themselves?

General GRAY. These are long-time civilians billets. It has been approved over time. I think contracting out is an economy measure to get more for the dollar than we are given. For example, it is true that enlisted personnel can serve in mess halls but it is more expensive than contracting out which also helps local economy. So I think it is a very sound economic measure. The number of civilian support personnel we require has not changed to any great degree over a long period of time. The Secretary says it frees up military personnel for measures like fighting. There is no question that Marines can pick up the trash, but I don't think you or the American people expect us to do that. You expect us to be prepared to fight and win. I think it is a good investment.

TETHERED TORPEDO

Mr. **Miller**. In another area, Mr. Secretary, your prepared statement lists the fiber-optic tethered torpedo. You list it as one of the Navy's ongoing demonstration projects.

Could you give us a little more information? It seems that we would be trying to get away from having a tethered torpedo. It seems as though electronically we could do this without connecting up some type of electrical tether that will give a signal to guide the torpedo, correct?

Secretary **Ball**. I was attempting to list a number of areas where new and advancing technologies have an application to Naval weapons that we are pursuing. Torpedo technologies and the use of other technologies provides us with options we are exploring.

Admiral **Trost**. The concept of a tethered weapon is not new; we do it with our modern torpedoes. We have a guidance wire that we connect so that we can accommodate maneuvers of the target and correct for them so the torpedo can get within range. It makes the weapon more potent.

The advantage of fiber optics is, one, lightweight, and two, capacity. You can make the torpedo smarter over a fiber-optic system and you do it with a small, lightweight package.

Mr. **Miller**. How far from the submarine, let's assume, to the target can that be and still be under control of the fiber?

Admiral **Trost**. ———.

Mr. **Miller**. Very good.

Thank you.

Thank you, Mr. Chairman.

Mr. **Murtha**. Mr. Hefner.

Mr. **Hefner**. I have no questions.

ANTI-SATELLITE (ASAT) PROGRAM

Mr. **AuCoin**. Admiral Trost, I was listening to your answers to my colleague, Mr. Dicks' questions on the improving Soviet ASAT. Inasmuch as the Soviets have had a seven year moratorium on testing their ASAT capability, how can they certify their improvements?

Admiral **Trost**. They stated their ASAT capability has not changed, but their ability to launch better satellites has and that is our concern.

Mr. **AuCoin**. Your naval intellilgence report indicates that the Navy expects the Soviets to improve their current operational orbit ASAT. I am wondering, in the face of that seven year moratorium, how that expectation is justified.

Admiral **Trost**. I would have to ask Admiral Brooks and provide that answer for the record.

Mr. **AuCoin**. I once asked Tom Cooper, who is the Air Force R&D man, what the effect would be of testing any kinds of ASAT capability without the terminal-guidance testing being a part of it. I think the way I put it to him was, isn't that like batting practice without a baseball? His conclusion was that that was very much accurate, batting practice without a baseball.

Admiral **Trost**. No quite. You are shooting something but you don't have the final weapon.

Mr. AuCoin. You don't know whether you are getting a hit or miss.

Admiral Trost. All you would know is whether you would have the ability to put it within reasonable proximity to the target.

Mr. AuCoin. I have difficulty with any of the services talking about the robust Soviet capability when in fact for 7 years there has been a moratorium and it seems to me the best of all possible worlds is we keep ASAT capability out of the hands of both sides. We gain more than they would.

Admiral Trost. I have heard that argument. They have a capability and we do not.

Mr. AuCoin. But one which has not been tested for 7 years. In fact, it is my understanding that there is an answer that we have not tested.

As suggested at arms talks by the Soviets, to dismantle their ASAT. Have you heard that?

Admiral Trost. No.

Secretary Ball. Recently I had an occasion to visit the Space Command in Colorado Springs. There is an impressive collection of information there. I would urge the subcommittee that has an interest in this program to see some things there, that are not available elsewhere.

Mr. Dicks. Is this at Space Command?

Secretary Ball. Yes, at Peterson Air Force Base at Colorado Springs. I didn't see any indication there of this.

Mr. AuCoin. I am going to search my files, data base, whatever, to get my hands on what I understand that unanswered offer to be and just put it in the record and see what your response is. Maybe you can respond for the record.

Admiral Trost. I would be glad to see that because I have never heard that included.

Mr. AuCoin. We had the CINC Space Command here a couple of days ago. He indicated from the military standpoint, the most stable situation militarily is if neither side had an operational ASAT capability.

Admiral Trost. I would agree with that.

[The information follows:]

The Navy, in conjunction with the other U.S. intelligence agencies, expects the Soviets to improve their current ASAT capabilities against low earth orbit satellites. While the seven year moratorium on ASAT testing precludes full development of a dedicated ASAT program, we believe the Soviets are working within moratorium constraints to develop more capable ASAT systems. For example, the Soviets test all elements of their existing ASAT system including the launch vehicle, minus the warhead, each time they launch a RORSAT or EORSAT. There is a significant body of evidence the Soviets also are testing ASAT subsystems such as acquisition, pointing, and tracking sensors.

In addition, the Soviets have an intensive program under way to develop three possible ground-based, high energy laser sites that do not violate the ASAT testing moratorium, but may be supporting ASAT applications and may possess the capability to achieve sensor damage or disruption of mission function of satellites in low earth orbit. Finally, the Soviets' recent introduction of a more powerful, compact nuclear power module may be a critical step toward eventual deployment of a space based ASAT.

MK-48 ADCAP TORPEDO

Mr. AuCoin. Let me ask about the MK-48 ADCAP torpedo. The Secretary indicates that the MK-48 ADCAP torpedo successfully completed test and evaluation, and that it remains effective against the threat well into the 21st century.

In fact, Admiral or Mr. Secretary, operational testers concluded that ———.

Is the MK-48 ADCAP operationally effective?

[Clerk's note.—Classified discussion removed.]

Mr. AuCoin. I am glad to hear that in the absence of war.

Admiral Trost. There are certain tests that have to be simulated. One can simulate the effect with simulators and by sensitivity of a target against which the weapon is employed. Then you have an idea of what it would or would not do.

Mr. AuCoin. Have you run those simulations?

Admiral Trost. Yes.

Mr. AuCoin. Is it possible to test against targets with that kind ———? You do have targets?

Admiral Trost. Yes.

Mr. AuCoin. Why not use the ———?

Admiral Trost. The replication requires the size of the hull and not all the various aspects. It is not just the ——— but the standoff distance between the hull and other factors. We simulate that with the results of real-life known factors.

Mr. AuCoin. Do you feel comfortable that the weapon is successful as tested against simulations?

Admiral Trost. We also shoot against targets.

Mr. AuCoin. But without the ———?

Admiral Trost. We will never be able to test against real-life things. We are ——— getting a target that runs deep enough to replicate the deep diving fast Soviet submarine. There are tests coming up later ——— for the MK-48 ADCAP.

Mr. AuCoin. We now have the ability to test it?

Admiral Trost. Yes, as I recall.

Mr. AuCoin. Mr. Chairman, I have no further questions.

I am glad I brought Admiral Trost around to my view on the ASAT.

General Gray. I think Pete indicates that if nobody had it, that would be fine, but they have it; that is what worries me as a member of the JCS.

Mr. AuCoin. Untested for seven years. How would you feel about a treaty for untested verification?

General Gray. That is quite a quid to take down their capability and for us to give up our SLCM's. I don't know.

Mr. Dicks. You say to them we would give up the Midgetman and MX if they gave up their SX-24 and 25, so we have some imaginative proposals, too, at these arms control talks.

Mr. Murtha. We would get concerned about our security if we start to believe the Russians.

General Gray. I wrote "buyer beware" on the bottom of my pad.

Mr. Murtha. Mr. Sabo.

NAVY PROCUREMENT & CONTRACTING

Mr. **Sabo**. Thank you.

How many people are involved in procurement in the Navy?

Secretary **Ball**. I think I will have to provide that for the record. Civilian and military, in terms of direct—I will give you an answer direct and indirect.

Mr. **Sabo**. Do it for the record, please, and also indicate what the trend is.

Secretary **Ball**. If I may, I will supplement that with the number of contracting actions we are administering in our acquisition process.

General **Gray**. The Marine Corps is 540 less than it was a year ago.

Mr. **Sabo**. Good.

[The information follows:]

	Fiscal years—	
	1987	1988
Civilian contracting career personnel:		
1101—General business and industrial	725	844
1102—Contracting	4831	5142
1103—Industrial property management	176	182
1105—Purchasing	1653	1649
1106—Contracting clerical and assistance	1857	1870
1150—Industrial specialist	694	721
Total civilian contracting personnel	9,936	10,408
Military contracting career personnel:		
Navy Supply Corps officers (Based on subspecialty codes 1306P/S for acquisition contract management or additional qualification designators 916/917 for acquisition contracting/contract administration, 31 January 1989)	530	530
Marine Corps officers	10	10
Marine Corps enlisted	75	75
Total military contracting personnel (approximate)	615	615
Indirect contract support personnel:		
Secretarial, computer, etc. (estimated at 20 percent of fiscal year 1988 direct personnel)	2,200	2,200
Total Navy contracting personnel	12,751	13,223
Contracting actions:		
$25,000 or less	3,642,175	2,962,702
Over $25,000	79,384	80,716
Total Navy procurement actions	3,721,559	3,043,418
Contracting dollars (thousands):		
$25,000 or less	3,576,435	3,912,192
Over $25,000	51,349,918	51,735,255
Total Navy procurement dollars (thousands)	54,926,353	55,647,447

ANTOMATED DATA PROCESSING (ADP)

Mr. **Murtha**. There are a couple of things here that I am concerned about. We have some very damaging reports from the Surveys and Invetigative Staff—S&I staff—about your standard automated financial system, your DOD-ADP.

Let me give you an example of what I am talking about. The Navy spends over $2 billion annually on ADP. In February, the Inspector General published a report saying the Navy has not implemented procedures, that there were ineffective policies, inadequate procedures, et cetera, et cetera. One of the things the staff says is that they believe there is not enough attention from the top of the leadership in the Navy to these issues. I am asking, Mr. Secretary, that you pay personal attention to these questions and answer them for the record. We are talking about system costs—it was supposed to cost $38 million and was recently terminated after the cost rose to $500 million.

We are talking about big money and apparently some big concerns. So I would appreciate your personal attention to these questions, then I will look at them. We will review them and see where we are, because these are very detailed.

Mr. DICKS. Would you yield to me for one question on this?

It says here a number of National Academy of Science studies sponsored by the Navy show lack of commitment by Navy leadership as the number-one problem in this area. We are talking about a couple of billion dollars a year.

How would you characterize Navy leadership's commitment to effective ADP management?

Admiral TROST. I thought the Navy leadership commitment was a pretty great one. My commitment continues even though the recent laws on acquisition prevent my having to do anything with it.

Mr. DICKS. Explain that.

Admiral TROST. The Goldwater-Nichols Act takes the service chiefs out of acquisition.

Mr. DICKS. Who gets it?

Admiral TROST. The Service Secretary.

Mr. DICKS. So this is all your problem

Secretary BALL. It is now. Thank you very much.

Mr. DICKS. You just got here so we can't blame you.

Secretary BALL. I know the seriousness of this problem. It is indeed a serious matter and it has over time become one of seeking where possible to procure ADP systems in an even, standardized and centralized way versus the individual users and commands seeking to get a system that meets their open specifications and particular needs.

The STAFS program was an example of a system where in 1978 we hoped to put a standard system into the Navy labs to help with the investment the Congress has placed in the Navy R&D labs over the years. We recently terminated the program and I will provide information on that.

I believe that was the correct decision. I don't want to make excuses for a number of errors that were made across the execution of that program.

NAVY PROCUREMENT SCANDAL

Mr. MURTHA. We understand that they spent $120 million terminating that project. We will appreciate a report on that whole problem.

Let me ask you about the procurement problems in the Navy as far as the investigations. I remember after it hit the paper, some old-time lobbyists said, "The reason we had the problem was because Secretary Lehman got rid of the materiel command and if they had not, we would never have had this scandal."

I am not sure how serious or widespread this is or how far it has gone. Obviously, you are going to find people in any organization who take advantage of it. These guys already broke the law so it is not as if you needed a law. You just need honest people in those positions.

What is the situation? I am not trying to interfere with the investigation, but I want to make sure I know what is going on in the Navy in order to correct any problems you have been able to see since this thing has broken.

Secretary BALL. Let me say, Mr. Chairman, I think first of all, as I think most of the Members know, we instituted a number of years ago an anti-fraud awareness training program in the Navy. One, to give you the good news first, we think the discovery of the fraudulent activity was taken by a person who has been to the Navy's anti-fraud training program.

Mr. MURTHA. How did that happen? I don't remember that.

Secretary BALL. The details of that, I suppose I will have to get from the investigators, but essentially it was an individual who had been through fraud training, who detected fraud on the part of one of the individuals who is now the target of the investigation.

Mr. MURTHA. Your people discovered the problem?

Secretary BALL. Yes sir, and reported that to the Naval Investigative Service. The Naval Investigative Service in turn, instead of investigating that individual, decided to pursue opportunities that they were led to over the course of time before taking the case to the FBI.

So it was not an instance of an outside investigation discovering this activity; it was brought about by someone who attended our fraud awareness program, which the Naval Investigating Service continues to this day. I don't think we can attribute organizational changes to the circumstances of that—in reality, it has been a few unscrupulous individuals, and I am not sure of the ultimate number of people that will be found to be involved in the investigation.

The CNO and I have discussed the span of control, if you will, over the systems commands that deal with hardware development issues in the Navy.

Once this investigation is concluded, I am certain we will take a long, hard look at the number of lessons learned.

In the meantime, we need to continue implementing acquisition policies and strategies that we know will work. We instituted a number of things that the Packard Commission subsequently embraced in its report and which since have been hailed as good and commendable policies for acquisitions management.

We established the materials acquisition program in 1985 before the Packard Commission made such a recommendation. I don't think in sum that we need to start from scratch and redesign an acquisition system that has worked and which has enabled us to use competition to procure good equipment over time at the best price we can get.

I am concerned about the proposals of Congress to remove from the services the function of acquisition, that is to put it into a separate civilian bureauracy function of deciding what systems to acquire and how to acquire them.

I think, if there is anything that we need at the moment, it is stability in our progress in implementing the Packard Commission recommendations. The President has directed a management reform initiative that the Defense Department will undertake very shortly.

Mr. **MURTHA**. One of the things that always concerns me, I don't know who you guys put in the White House to scrub these things but sometimes I get the impression the guy doesn't know what he is doing over there. They scrub things out that are really unrealistic. I suppose you get a chance to go back and they re-look at the issues. Some of the ideas they come up with administratively from the bowels of the White House worry me. I guess you put these people in place before you went off to the Pentagon.

Secretary **BALL**. I would not want to question the ability of anybody on the White House staff.

Mr. **MURTHA**. Are there any other questions?

AFFORDABILITY OF MAJOR PROCUREMENT PROGRAMS

Mr. **MCDADE**. I want to go back to the questions of affordability. For example, I look, as we had the conversation about the Seawolf and its share of shipbuilding costs.

In 1991, the SSN-21 accounts for 32 percent of the shipbuilding account. Don't get the impression that I am sitting here saying "don't build it."

Secretary **BALL**. Is that 1991?

Mr. **MCDADE**. Yes.

Secretary **BALL**. The two budgeted ships?

Mr. **MCDADE**. Yes, that is correct, going to 27 percent in 1992 and up to 30 percent in 1993.

When we look at the aircraft accounts, in the 5-year plan that was up here a few years ago, you were going to buy 400-plus aircraft. In fact, this year you were at 200. We were told earlier that the A-6 was a casualty of affordability.

If you had an opportunity to do what you wanted to, you would be buying the A-6 in a new form. Yet, when you look over at those aircraft accounts and look at the submissions for the ATA and V-22, those two accounts in 1990 account for 35 percent of the funds, 35 percent of your dollars going to those two aircraft. The number of aircraft having been cut back from the 5-year plan, back to 200.

If those figures are correct—and these are not off the Reagan numbers or the Bush numbers. I want to get some guidance from the Secretary and the Admiral, from you and General Gray in response to the committee.

When you sit here, it looks like you are going to start backing out of other kinds of aircraft and ships simply on the basis of the affordability problem.

Secretary **Ball**. You have picked three new programs. They are among the biggest items. We have in our five-year program, each within its own areas meeting a very high priority.

Mr. **McDade**. By 1994, the six top-ticket items will take about 24 cents out of every dollar going to defense acquisition.

All I am trying to do is raise the caution with you that I see on this side of the table and get your opinion about it. They are new programs and there are going to be some delays before we get them. I think the Navy has already said you are short air-planes.

Secretary **Ball**. It is true, we are facing the fact that these systems are costing more than the systems that they are replacing by a considerable margin. At the same time, they bring capabilities to the Fleet and the Fleet Marine Force that far exceed the systems that they are replacing and indeed in may respects are a quantum leap in the technology. What the V-22 will bring is a new dimension from previous warfare. What the SSN-21 will bring is our critical submarine superiority. It is unavoidable for us not to pursue a technology that protects that edge.

The ATA puts us in the position, in the 1990s and beyond, to be able to project power from the carrier-based airwings that we will deploy for the remainder of this century. There is no question that the systems are more expensive than what they are replacing, but it is much like the destroyer I served on in the early 1970s. Admiral Trost mentioned what we are building today. The capability for multiple missions has made that investment a prudent one worth proceeding with.

On the question of shortage of aircraft, I would be pleased to submit some specific material that addresses that.

Let me say in short that we have a comprehensive review that we have undertaken on that subject. We can cite some shortages in the area of medium attack, which is the A-6 program that you mentioned. We are faced with this gap until the A-12 program is on line and deployed. We are recognizing the certain risks in our sticking with the A-6E even with the upgrade program.

I have to conclude with the Secretary of Defense, that foregoing additional investment in an A-6 derivative at this point is the right decision given where we are overall with the bottom lines that we are told to live with. I would like for the CNO and Commandant to speak to this issue.

Admiral **Trost**. I would echo what Secretary Ball says in terms of improved capabilities represented by the new programs. For example, with the SSN-21 it will cost, on a lifecycle basis, about 10 percent more than the platforms it supersedes. It will provide a manifold increase in capability, and in fact provide some capabilities that the platform it supersedes could never have.

So I don't feel badly about having to pay the extra amount nor am I really concerned about the percent of the budget in the SSN area because that is clearly our highest priority shipbuilding program. But in a time of declining fiscal resources, if we look at the projection of what that budget would have been in 1987 when we talked about 400 airplanes, it probably would be less than 25 percent of the budget.

Mr. **McDade**. It is about 9.7 percent.

Admiral **Trost**. It probably would have been about $14 billion in 1987.

Mr. **McDade**. That is the very point I am trying to raise. It looks like we are coming to a crossing of lines where given the priorities, nevertheless it is going to start pushing out essential items.

Admiral **Trost**. I understand, but we will have to try to maintain a balance by putting our money behind our highest priority projects so some of those will consume an increasing proportion of a given account.

Mr. **McDade**. They sure use up the shipbuilding accounts. We talk about sealift, the fact that we don't have any. You talk about escort ships and a wide variety of things that impact the escort program and the shipbuilding program, and I see a problem we will be living with for a couple more years the way things are going.

I am trying to bring this to your attention and get your guidance because obviously we are going to have to put down the final numbers here. We want to be sure that we are heading in the right direction.

Admiral **Trost**. You are helping make my argument for bigger budgets or at least budgetary stability because we start a lot of things with no idea what is going to happen to us.

Mr. **McDade**. In a perfect world we would not be facing this problem but we are not in a perfect world. It is a real world we are going to be facing. Amplify the record, if you wish.

General **Gray**. Congressman, I think you will be pleased with the Department of Navy aviation plan which has been started as a result of the congressional request. It is a pretty balanced program within affordability.

You will be pleased to see that we have fewer types of styles of aircraft. I think at the same time we have a multiplicity of missions with four naval aircraft. We have support to ground operations, maritime air surveillance and all that.

To me, too, not just the operational advantages that the Secretary of the Navy and CNO pointed out, but in a case like MV-22, the cost savings also will come downstream with the broader capabilities. That is where the cost comes in our our side; survivability and that type of thing.

If we replace the MV-22, I guess with the cloak conventional helicopter—fundamentally there is only so much physics will allow you to do. To replace our helicopter with additional pilots, our estimates say we will have to be plussed up $4 billion to do that with the MV-22. That is the other side of the tail end of this coin. I think you will be pleased with this plan.

Mr. **Murtha**. General Gray, I have to disagree with you that we have a program here that we will be happy with, because when you drop from 422 to 200, those unit costs have to sky-rocket. You know, we are not getting the most for our money when we drop down the numbers we buy.

As a matter of fact, if the Secretary would provide for the record what the unit costs would be on these things——

Secretary **Ball**. On the aircraft?

Mr. **Murtha**. Yes.

Secretary **Ball**. Yes, sir.

Mr. MURTHA. It will be substantially more. We are getting a lot less aircraft for the amount of money we are spending with the lower buy.

Secretary BALL. On a case-by-case basis, I suppose that is true. With the F/A-18 and some programs that have had stable production rates, we have seen, we have had at least stable funding profiles and at least in some cases some savings.

With the uncertainty of the top line over the last two or three years, we have had to do some puts and takes on the top line that we don't like to make.

Mr. MURTHA. Before we have our markup, let's see what it is going to cost us on the reduced buys.

Mr. Hefner?

Mr. Hefner. I have a couple of questions for the record, if I may.

Mr. MURTHA. Fine.

[CLERK'S NOTE.—Questions submitted by Mr. Hefner and the answers thereto follow:]

ENHANCED MODULAR SIGNAL PROCESSOR

Question. Mr. Secretary, the Navy has been developing a signal processor for use in antisubmarine warfare. This system known as EMSP is ready for production and has been defined as the Navy standard. I understand the Navy is now considering not producing this processor and may delay upgrading this critical area for several more years while another version is developed. The system which was projected to be the largest user of EMSP was the SQQ-89. The SQQ-89 is currently being deployed with a signal processor which represents 1970 technology and will have to be retrofitted with an upgraded processor at considerable expense in the future. The SEM B versions of EMSP is ready now. Would you look into this issue and advise the committee as to the Navy plan in this area. In your response I would appreciate your addressing the following points.

What was the original target number of both the SEM B and SEM E versions of EMSP to be bought by the Navy? How has that changed over the course of the program? Specifically, describe the number of processors by type (EMSP SEM B, SEM E, and the older processor) planned for the SQQ-89 and how that view has changed since 1985.

Answer. For total market numbers, see attachments 1 and 2.

In 1985, the SQQ-89 program plan included two distinct phases, the SQQ-89 Basic, which is the version in production since 1983, and the SQQ-89 improved (SQQ-89I), which was scheduled to enter development in fiscal year 1986 and production in FY 1993. This plan included incorporation of the SEM B version of EMSP in the SQQ-89 Basic as an engineering change (EC), with first procurement in FY 1987. The advantage of this plan was that although EMSP by itself provided no inherent performance improvement, it prepared an architectural foundation for incorporation of performance improvements in the SQQ-89I development program. In FY 1986, procurement estimates by fiscal year were:

	Fiscal year—									
	Prior	1986	1987	1988	1989	1990	1991	1992	1993	1994
SQQ–89 Basic (Ship Systems)	35	19	15	15	12	8	6	6		
UYS–1 Processors	163	62	55	69	7	4				
UYS–2 Processors (SEM B)		1	4	28	32	28	32	28		
SQQ–89I Systems (Ship Systems)									10	12
(UYS–2 Processors									40	48

Note.—Includes retrofit system/units.

Reductions in the RDT&E budget in FY 1987 through FY 1989 delayed first production of the SQQ–89I until FY 1995. At that time the decision was made to continue EMSP as and ECP for the SQQ–89 Basic, with first production now in FY 1992. In parallel, the Navy also planned to introduce the Acoustic Video Processor (AVP), a next generation display console, into the SQQ–89 Basic in this FY 1992 baseline. The procurement profile now became:

	Fiscal year—									
	Prior	1986	1987	1988	1989	1990	1991	1992	1993	1994
SQQ–89 Basic (Ship Systems)	35	19	15	15	10	7	5	5	5	5
UYS–1 Processors	163	62	55	62	58	56	63			
UYS–2 Processors					2	8	6	46	37	56
SQQ–89I Systems (Ship Systems)										
(UYS–2 Processors										

Note.—Includes retrofit system/units.

In the review of the FY 1989 President's Budget, the Congress directed that the initial procurement of the AVP be accelerated to FY 1990 and provided the FY 1989 portion ($15 million) of the additional non recurring costs needed to meet this objective. Acceleration of EMSP could not be accomplished in this same time frame, leaving the SQQ–89 with two major configurations baselines two years apart. The SQQ–89 Basic is in the process of qualifying a follower to allow annual leader/follower competitive procurement of SQQ–89 Basic systems starting in FY–90. Lack of a stable product baseline (i.e., two baselines in two years) increased program risk and severely impacts the ability of the follower to attain a competitive position.

In FY 1989, the prime contractor was funded to perform a top level design study and develop cost estimates and program schedules to incorporate EMSP into the SQQ–89 Basic. The results of these studies showed that in addition to jeopardizing competition, the projected schedule to meet the FY 1992 procurement involved unbudgeted cost and inordinately high schedule and technical risks which were not justified without significant performance improvement. The interim options of delaying the FY 1992 baseline to FY 1994 (using the EMSP in either the SEM B or E version) were explored and discarded, in view of the estimated $200 million plus non-recurring cost estimate needed to accomplish this change, and the fact that this system configuration would only exist for one year before we began procurement of the SQQ–89I. Therefore, the decision was made to implement EMSP in the SEM E variant in the SQQ-89I starting procurement in FY 1995. The current procurement plan is shown below:

	Fiscal year—									
	Prior	1986	1987	1988	1989	1990	1991	1992	1993	1994
SQQ-89 Basic (Ship Systems)	35	19	13	12	9	8	10	9	9	9
UYS-1 Processors	163	62	49	49	43	43	50	52	54	51
SQQ-89I Systems										
UYS-2 Processors										
(SEM E)										

3/17/89

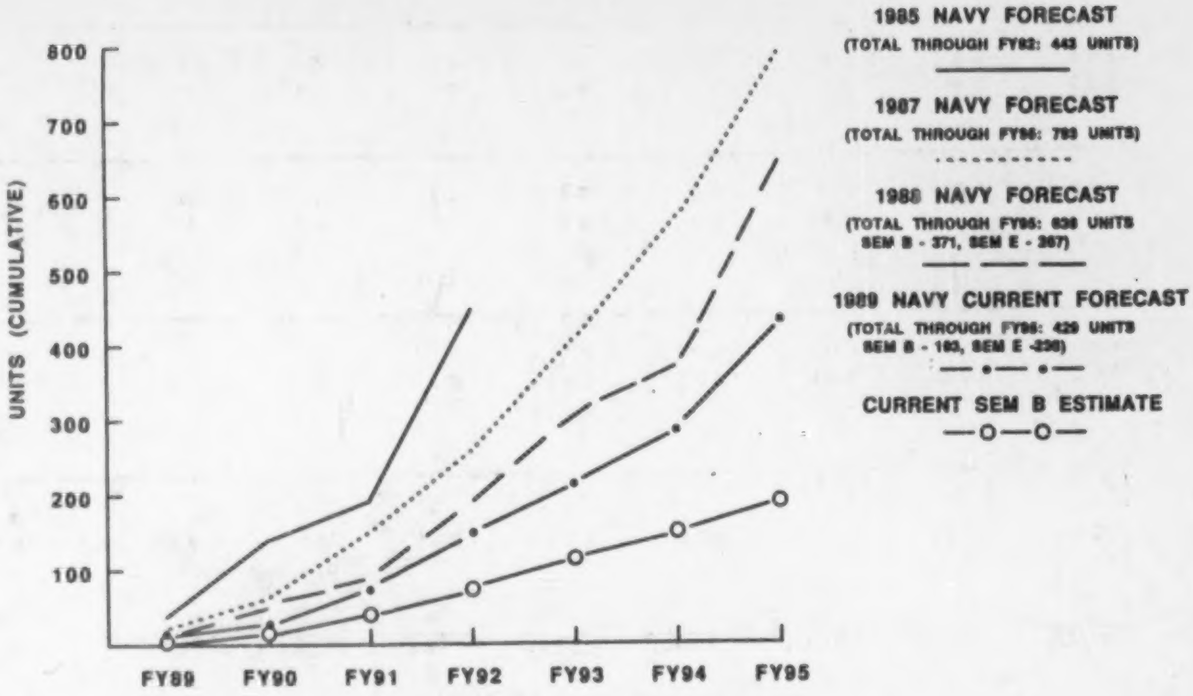
EMSP PRODUCTION HISTORY
(UNITS)

DATE		FY89	FY90	FY91	FY92	FY93	FY94	FY95	TOTAL
Oct. 85	SEM B	38	92	163	150	TBD	TBD	TBD	443+
	SEM E	- -	- -	- -	- -	- -	- -	- -	- -
Sep. 87	SEM B	20	48	79	117	139	185	205	793
	SEM E	- -	- -	- -	- -	- -	- -	- -	- -
Sep. 88	SEM B	14	28	24	72	65	90	78	371
	SEM E	0	6	21	25	50	77	88	267
Mar. 89	SEM B	13	12	18	34	30	38	48	193
	SEM E	2	5	28	33	32	41	96	237

COMMENT:

DROP IN EMSP UNITS FROM SEP 88 TO MAR 89 MAINLY ATTRIBUTABLE TO SQQ-89 MARKET DECREASE

EMSP PRODUCTION FORECAST



3/16/89

Question. How much money has been appropriated for development of these two versions of the signal processor?

Answer. For the SEM B version of EMSP, $404.6 million in RDT&E,N funding has been appropriated through FY 1989. For the SEM version, $29.5 million in RDT&E,N funding has been appropriated through FY 1989.

Question. What are the differences between the two versions in capability, size, weight, availability and unit cost?

Answer. UYS-2 configuration sizes are presented in terms of numbers of arithmetic processors (APs), global memories (GMs), and data bases (DBs). For example, a 5/3/1 machine has 5 APs, 3 GMs, and 1 DB.

EMSP Comparison for a Typical Dual 5/3/1 Configuration

	SEM B	SEM E
Configuration	Dual 5/3/1	Dual 5/3/1/
Processing Capability [1]	630 MFLOPS	900 MFLOPS
Size [2]	24 cu. ft.	8 cu. ft.
Weight [2]	2000 lbs.	600 lbs.
Power	24 KW	5 KW
Order Availability [3]	Jul 89	May 91
Avg. Unit Cost [4]	$5.0M	$2.1M

[1] MFLOP (Million Floating Point Operations Per Second); assumes 75 percent processor throughput efficiency for both SEM B and SEM E.

[2] Assumes redesign of enclosure for SEM E.

[3] Dates represent when initial production orders can be placed. The lead time for unit deliveries is 18 months.

[4] Based on market projections through FY 1996

Question. What is your estimate of the unit cost of the SEM B version if the SQQ-89 requirement is included in the buy, beginning in FY 1990, and if it is not?

Answer. There is requirement for SEM B units for the AN/SQQ-89 until the FY 1995 initial procurement of SQQ-891. Based on substituting EMSP for AN/UYS-1 through FY 1996, the average unit price with SQQ-89 requirements included is estimated to be $2.1 million (FY 1989 dollars). IF SQQ-89 requirements are not included, then the average unit cost for a 239 unit (5/3/1) market is estimated to be $2.6 million (FY 1989 dollars). Thus, without including SQQ-89 requirements, the cost impact to the SEM B market through FY 1996 is estimated to be $119.5 million based solely on unit quantities. This analysis does not include supply support equipment, eg., spares.

	Fiscal year—					
	1989	1990	1991	1992	1993	1994
w/o AN/SQQ-89:						
Unit Price ($ million)	3.3	3.2	3.0	2.6	2.6	2.5
Average Unit Price $2.6 million						
with AN/SQQ-89 Unit Price ($ million)	3.1	2.9	2.7	2.3	2.3	2.2
Average Unit Price $2.1 million						

Question. What is the increased capability provided to the SQQ-89 system by using either the SEM B or SEM E processor rather than the older system now being installed? Would you lay out the cost, time and capabilities of the SQQ-89 under the following options:

Field the initial SQQ-89 systems with the older processor, and introduce the new SEM B version at the earliest possible date.

Field the initial SQQ-89 systems with the older processor, and introduce the SEM E version at the earliest possible date.

Introduce SEM B as soon as possible and transition to SEM E at an apropriate date.

For each of these options, please compare the date the EMSP will be introduced with the earlier SQQ-89 plans as described in your response to the question above. Please provide justification for any resulting delays in providing the increased ASW capability to the SQQ-89 system.

Answer. No capability increase is provided to the SQQ-89 Basic solely as a result of substitution of EMSP for the UYS-1. The additional processing power available with UYS-2 can not be fully utilized without additional non-recurring engineering outside the EMSP. The major active sonar improvements which are the key to the SQQ-89 Improvement Program (RDT&E) will not complete development until FY 1995. It should be noted that the SQQ-89 Basic with its current UYS-1 is regarded as one of the most capable tactical ASW systems in the world. Should urgent signal-processing intensive upgrades be required, the SQQ-89 currently has a 20% signal processing reserve.

Continue production of UYS-1 based SQQ-89; transition to SEM B at earliest possible date—

Unbudgeted cost estimate: Non-recurring: $200 million plus; Unit increase $2 million—$8 million.

Initial production: FY 1994 (B).

Capability increase: None until FY 1995 procurement of SQQ-89I (See note).

NOTE.—Assumes transition of SQQ-89 Basic to SEM B with procurement decision following Design Certification Test. Any increased concurrency in development/procurement involves potential risk of delivering inoperable systems to ships SQQ-89I continues development in SEM E. The additional processing power available with UYS-2 can not be fully utilized without additional non-recurring engineering outside the EMSP.

Continue production of UYS-1, transition to SEM E at earliest possible date.

Unbudgeted cost estimate: Non-recurring: $200 million Unit (Shipset) ($.6 million)—$5.4 million.

Initial production: FY 1994 (E).

Capability increase: None until FY 1995 procurement of SQQ-89I (See note).

Introduce SEM B ASAP; transition to SEM E as appropriate.

NOTE.—Assumes transition of SQQ-89 Basic to SEM B with procurement decision following Design Certification Test. Any increased concurrency in development/procurement involves potential risk of delivering inoperable systems to ships. SQQ-89I continues development in SEM E. The additional processing power available with UYS-2 can not be fully utilized without additional non-recurring engineering outside the EMSP. Unbudgeted cost estimates are being defined during systems engineering studies and represent the best available information to date.

Introduce SEM B ASAP; transition to SEM E as appropriate—

Unbudgeted cost estimate: Non-recurring: $200 million (B), 0 (E), Unit (Shipset) $2 million—$8 million (B), Increase ($.6 million)—$5.4 million (E).

Initial production: FY 1994 (B), FY 1995 (E).

Capability increase: None until FY 1995 procurement of SQQ-89I which provides signal processing capability for low frequency active detection systems developed under SQQ-89I program (See note).

NOTE.—Assumes transition of SQQ-89 Basic to SEM B with procurement decision following Design Certification Test. Any increased concurrency in development/procurement involves potential risk of delivering inoperable systems to ships. SQQ-89I development program is fully funded to support production decision in FY 1995. Unit cost comparisons not available until additional full scale engineering development completed, since architecture significantly different. The additional processing power available with UYS-2 can not be fully utilized without additional non-recurring engineering outside the EMSP. Unbudgeted cost estimates are being defined during systems engineering studies and represent the best available information to date.

As discussed above, providing increased ASW capability to the SQQ-89 Basic is not directly synonymous with inserting EMSP to the SQQ-89. Insertion of EMSP at any point prior to the FY 1995 procurement simply results in changeover of the existing capability of the SQQ-89 sensors to new processing hardware. Unbudgeted cost estimates are being defined during systems engineering studies and represent the best available information to date. Additional data processing and display software would be required to integrate new capability into the system. Active system performance improvements require completion of the SQQ-89I developmental effort which is only in its second year of funding, and is not scheduled to complete until FY 1995. This development effort is tailored to the emergent threat, and to fully implement the gains potentially available from the SQQ-89I program, the system architecture will be significantly different than the current SQQ-89 Basic configuration. The software being developed under the R&D program would not be operable in the SQQ-89 Basic, with or without EMSP. The cost of implementing EMSP in the Basic SQQ-89 for no active performance improvement, coupled with higher hardware costs, probable loss of competitive. advantages associated with planned leader/follower annual competition starting in FY 1990, and the technical risk and increased life cycle cost associated with multiple configuration hardware baselines on a compressed development schedule of software development concurrent with EMSP procurement, mitigate against acceleration of EMSP in the SQQ-89 Basic configuration.

Question. How many SQQ-89 systems will have been procured through FY 1989 with the older processor? How many more will receive it under the Navy's current plans? What is the actual installation schedule for systems procured in FY 1990, FY 1991, and FY 1992?

Answer. Through FY 1989, the Navy will have procured 88 SQQ-89 systems with 471 UYS-1 processors. 45 more ships will be procured with 270 UYS-1s prior to FY 1995. Systems procured in FY 1990 through FY 1992 will be installed in new construction, overhauls and availabilities between FY 1993 and 1996.

Question. During deliberations of the FY 1989 Defense Bill the Navy developed a plan to keep the EMSP suppliers on board by purchasing the minimum amount necessary while the Navy settled on the requirement. This was projected to cost about $22 million. What is the status of this program? Has the money been distributed for its intended purpose? If not, why not? Will the committee's direction be adhered to?

Answer. Under current plans, Navy will continue to fund the EMSP production line by executing a $22 million RDT&E,N Above Threshold Reprogramming (ATR). Offsets for the reprogramming have been identified. However, recent changes in the program have necessitated a Flag-level review of EMSP, which is scheduled for 7 April 1989. Further actions will be determined at that time.

[CLERK'S NOTE.—End of questions submitted by Mr. Hefner.]

Mr. MURTHA. Mr. Dicks.

SHIPBUILDING INDUSTRIAL BASE

Mr. DICKS. January 5 the subcommittee wrote to the Secretary expressing our concern over the shipbuilding industrial base. The Secretary directed the Department on TAO to determine if current bid proposals are final. The results were to have been forwarded by February 9. I now understand the report is not expected until March 27. Is this correct?

Secretary BALL. March 27, I don't believe so. I hope to report back to the subcommittee before that. The cause for the delay has very simply been developments within the industry that have affected what we consider to be important to two shipyards engaged in the business of construction of auxiliary type ships.

We are finding ourselves facing a noncompetitive situation. Thus, while there have been some developments with respect to one of the shipyards involved in auxiliary programs, we have withheld further response to the committee until that situation clarifies itself.

I think it is virtually clarified and I hope to be able to report back to the subcommittee shortly.

TRIDENT II (D-5) MISSILE

Mr. DICKS. There was a cost study done on the D-5 missile. The study identified up to 25 percent savings that could be realized with changes in manufacturing and testing procedure.

When we talk about competition, this is one area where we have not had competition, as I understand it. We have gone sole-source on these missiles. We have been told that we get great quality and the quality is exceptional, I believe. But if there are some savings that could be achieved and I noticed the Navy is requesting $1.6

billion for a few Trident missiles, I would like to know what we are doing about taking this study and implementing it.

Admiral TROST. The study has been implemented. There were savings that could be and are being achieved. I can provide the details of that answer for the record.

Mr. DICKS. All right.

A Trident II (D-5) "Could Cost" study which was directed by the Under Secretary of Defense for Acquisition (Mr. Costello) has been completed. Major points of the study include:

Could cost definition: anything you are doing that is not needed and not against the law to delete.

Adhering to a philosophy similar to "Could Cost" in areas of Quality Management, Streamlining Requirements, and Producibility Engineering since program inception has already allowed the Strategic Systems Program Office (SSPO) to save $2.2 billion.

An additional $0.5 billion could be saved from important procurement practices including:

Building at a maximum productive rate—$280 million (72 missiles/yr)
Economic procurement of all parts—$100 million
Multi-year contracting (starting in FY 1992)—$17 million

These recommendations have not been incorporated due to fiscal constraints.

Mr. DICKS. Is it currently the Navy's plan on the D-5 to retrofit the Pacific Trident submarines with the D-5 missile?

Admiral TROST. It is.

Mr. DICKS. Is there a question about which warheads will be there? As I understand, there are two different warheads; how is that going to work?

Admiral TROST. There is no question that the warheads are two different types, which can be mated to the D-5 missile. The decisions will be operational as to which warheads will be placed on which missiles.

Mr. DICKS. Obviously in our area there is concern about some military construction associated with going ahead with that retrofit of D-5 at Bangor. Is that going forward?

Admiral TROST. It is our plan to continue. There have been proposals by some Members of Congress that we not backfit because that is another way of saving money.

We need the capability in both oceans. It is better to support a single system than multiple systems.

AIRCRAFT PROCUREMENT

Mr. DICKS. One of the arguments that proponents of a 13 carrier battle group is that we are short on aircraft. Instead of buying more carriers we ought to be buying more aircraft to properly equip our existing carriers. How do you handle that?

Admiral TROST. We handle it using the decks we have. As budget cuts take large whacks of cash out of our funding we are not going to buy as many of certain types of airplanes, for example, the A-6, where we have had to terminate procurement.

We also have to slow down the increase in number of A-6 aircraft. We will have to keep some older aircraft in the inventory longer. We will have to draw on the attrition pipeline. We are simply going to have to tailor the deck with the aircraft available.

Mr. DICKS. So you do it by cross-decking?

Admiral TROST. You can do it by cross-decking, if that is required.

Mr. DICKS. Are we reducing the size of the carrier airwings?

Admiral TROST. We are taking six aircraft out of the nominal wing, what we refer to as the transitional wing. ——— That is several fewer S-3 aircraft, which are going out of inventory. I should not say that, as they go down, we are not building them.

Mr. DICKS. What is the S-3?

Admiral TROST. It is a twin-engine carrier-based aircraft which also has the additional role of replacing old EA-3s for electronic surveillance.

Mr. DICKS. Do you still feel comfortable with that level of aircraft per carrier?

Admiral TROST. I feel quite comfortable because that is at or slightly above the levels that we usually deploy.

V-22 PROGRAM

Mr. DICKS. On the V-22, I did not quite understand. Are we going to slip this?

Secretary BALL. We are going to let you know.

Mr. DICKS. But slipping is one option.

Mr. MURTHA. Don't put your money on not slipping.

Secretary BALL. The contract provides for certain "not to exceed" prices for the Navy. I did not want to get into this in open session. It is very important for our execution of the program to ensure the contract terms are favorable to the government for the initial prototype.

Mr. MURTHA. You are eight months behind.

Secretary BALL. We are eight months behind in that first flight and another few months in production of the first aircraft. But in restructuring that program, the contract has built into it the provisions for the contractors performing by certain dates and within certain prices.

Mr. MURTHA. I agree completely.

Mr. DICKS. What is in the budget this year for it?

Secretary BALL. We are going to be revising that figure before we finish this current budget scrub and send you another number.

Right now we have over a billion dollars in the budget for the fiscal year 1990 request, and that is going to come down by a number I will be able to give you when we finish the scrub.

Mr. MURTHA. You will still be able to keep the contractors' feet to the fire?

Secretary BALL. Yes, sir.

Mr. DICKS. You really want to split these two companies apart?

Secretary BALL. We want to preserve the option to do that, should that prove to be in our interest downstream. We do not want to alter the strategy now at the outset of the program and remove from the contractor the possibility that we may——

Mr. DICKS. You are trying to keep pressure on them?

Secretary BALL. Yes. I am not convinced that in the long term—we talked about the quantities that will ultimately be involved this morning—it may be that that strategy will prove to be the right one all through the program.

We don't have to change that strategy right now.

Mr. DICKS. General, did you have something you wanted to say?

General **Gray**. Aircraft two through six are delayed two months. Obviously we know the first flight has been delayed. I don't like the word "slip," for the record.

Mr. **Dicks**. Let's take it out of the record then.

General **Gray**. From an operational standpoint, we are going to get a better airplane in the same amount of time. One that we will be able to go to combat with the day after it is delivered. We won't experience the hazards of too much concurrency. It gives us a better opportunity to make the right decisions on the limited number we buy.

There will be adjustment. If we exercise a different option, there will be a difference in the dollar figure for fiscal years 1990 and 1991. We have to wait and see OSD's decision.

NATIONAL ACADEMY OF SCIENCES STUDY

Mr. **Dicks**. The National Academy of Sciences has recently released its study of emerging technologies the Navy will need to carry out its missions during the 21st century. Contrary to conventional wisdom, they concluded that C^3I should be the Navy's top RDT&E and procurement priority, not antisubmarine warfare. In fact, they believed that the U.S. Navy could only regain an ASW advantage throught the application of new C^3I and information technologies such as advanced signal processing and computing. What is your view of this study?

Admiral **Trost**. Those words intrigue me. I was responsible for the go-ahead on that study.

Mr. **Dicks**. Did you make a mistake?

Admiral **Trost**. No, sir. It is a damned good study but that is a pretty blasé synopsis of the study.

The study is an extremely good one. It was kicked off by the impact of technologies on naval warfare for the future and involves 180 well-qualified people who worked on the study about two years.

It is advisory in nature, but it provided us the basis to kick off a separate study of our own that said, okay, given what they have said about the impacts of technology, what are the most important areas of technology? We did that through an in-house CNA directed study effort, phase 1 of which is completed. We did prioritize those areas in which we should be putting our money in a period of fiscal constraint.

We then have a follow-on phase which is going to attempt to develop the roadmaps for R&D funding by priority in these areas where we will say, okay, if you want a capability here, you have got to start funding it here. Or if you can achieve something by such and such time, do you want to start now or can you wait for a few years?

It is a very good study. We are following it very closely. It has very good input.

I don't remember that it challenged my primary war mission area of ASW as being the top priority. I agree that in every warfare area, ASW, AAW, anti-surface warfare, or what have you, most certainly amphibious warfare, C^3I is extremely important. It is a very high-priority area for us.

General **Gray**. That was a great statement.

AMPHIBIOUS SHIPPING

Mr. **Dicks**. General Gray, in your statement you say amphibious shipping is of great concern. Then you say, simply stated, we do not have enough shipping to meet operational requirements.

Of great concern is the block obsolescence we face between the years 2000 and 2008. During this period, 47 of our current 63 amphibious ships will reach the end of their normal 35 years' service life. You say that while construction of certain things will keep us there for awhile, we still are going to have problems in the next decade.

What are we going to do about that?

General **Gray**. Fundamentally, in my view, for the minimum requirement for amphibious shipping as we get into the next century you need to be able to fight a Marine Expeditionary Force in each ocean; that is the overall requirement. However, we have been constrained fiscally for many years. So what we have is a game plan within the Department of the Navy which has an approved requirement amphibious lift for a Marine Expeditionary Force and a brigade; that is a good and solid requirement and we agree on that.

We also have the maritime prepositioned force capability. So we are up on the margin.

There is an affordability issue across the board when you look at the needs of the balanced fleet and what we can get by way of an investment for the Department of the Navy. We have a game plan. We would like to be able to execute it. We all deal with uncertainty with the budget constraints. Our mention of this issue is pretty much intended to raise a danger signal for us to be concerned.

You want to be able to project sustained power. I define that as hanging around long enough to get a political or a military decision. You have to be able to project it anywhere across the spectrum of conflict to include the low end, which I believe is most likely. Fundamentally, you have to come from the sea. You can augment with airlift, but you have to come from the sea. Also, you can sustain yourself from the sea. We believe that it would be prudent to keep this in mind in the overall concerns for seapower and within the needs of the balanced fleet; this includes air-surface, subsurface, power projection amphibious forces and the like.

Mr. **Dicks**. Can you do a SLEP on the ships; 47 of 63, that is 70 percent.

General **Gray**. Yes. What we mean here, is that you are going to see a lot of ships go into obsolescence. Therefore, the SCN plan as has been laid out, pretty much has to be adhered to. If we continue to cut into this part of the capability as well as other parts of naval capability as a result of progressively downward trend in the budget, we are going to have problems here in River City.

Mr. **Dicks**. If you want to, amplify that for the record.

I will have other questions for the record.

[Clerk's note.—Questions submitted by Mr. Dicks and the answers thereto follow:]

TRIDENT II (D-5) MISSILE

Question. The D-5 is by all accounts a management success story cited by both the GAO and Chairman Aspin as a model for how a program ought to be run. What lessons can we learn from this positive experience that might be transferable to other programs?

Answer. The highly successful Trident II (D-5) missile program can be attributed to a number of key elements:

(1) A commitment by the Navy to establish a management approach that emphasizes and supports the long-term continuity of both Navy and contractor personnel associated with the program. Because the program is large, with clear, and distinct goals, individuals can and do commit their careers in support of the Navy's contribution to our National Strategic deterrent.

(2) The Trident II (D-5) program is based on sound technical and programmatic principles proven by the five successful missile system development and production programs that preceded it under constant management concepts.

(3) The Trident II (D-5) program is a strongly supported program. The vastly improved capabilities it brings to the Nation's Strategic TRIAD have gained it broad support throughout the government. This broad support base has contributed to its success.

Question. In discussing the advantages provided by the D-5 with my constituents, it is sometimes difficult to discuss the flexibility the missile provides in terms of tradeoffs that are available between hard target capability, and enhanced range which can yield greater Trident operating areas, because of classification constraints. I wonder if you could provide an unclassified characterization of this flexibility and Navy plans to take advantage of it?

Answer. The Trident II (D-5) missile will provide significant improvements in payload, range, and accuracy over its predecessor, the Trident I missile. The improved range capability expands the (D-5) potential operating areas up to 3 times the C-4 operating area which enhances survivability and complicates ASW efforts. The improvements in payload and accuracy it provides enables the Trident II (D-5) to be employed against reinforced (hardened) targets.

SURFACE COMBATANT FORCE REQUIREMENTS STUDY

Question. There have been recent reports in the trade press on the findings of the Surface Combatant Force Requirements Study concluded last year that I would like to discuss in a forum where you are free to include classified aspects.

According to the reports the study concludes that in the next century the Navy is looking to build one class of warship, a large and heavily armed vessel that will replace all cruisers, destroyers and frigates now in the fleet. These ships would be procured at about five to six per year. Could you affirm this finding and describe how such a ship might be configured and what missions it would perform?

Answer. What the Surface Combatant Force Requirements Study (SCFRS) concluded was that our current mix of ships will be ineffective to combat the threat facing them in 2010. It stated the optimum, affordable way to pace the threat is to produce a generic multi-mission ship with a forward fit family of technologies that provide a minimum capability against the expanding threat. The study calls that ship a "Battle Force Capable" ship (BFC) which was developed using improved systems built on the DDG-51 family of technologies. These include:

A derivative of the phased array radar—the heart of the AEGIS Combat System.

Minimum of 90-122 vertical launch cells to allow for sufficient SAMS to counter the air threat and enough remaining cells for strike and ASW weapons.

A missile with enough capability to counter both high and low fast missiles.

An improved SQQ-89 ASW system to meet the submarine challenge.

Two lamps MK-III helicopters, or equivalent, to provide standoff localization and kill of enemy submarines.

The Battle Force Combatant will be used as an integral part of the carrier battle group or surface action group for power projection and sea control.

Question. Care to take a stab at cost for such a ship?

Answer. It is estimated that the BFC will cost roughly the same as a DDG-51 Flight III ship (approximately $860M).

Question. According to the reports the ships would be known as battle force capable ships with many of the features of current Aegis vessels, including a phased array radar and vertical launch system, plus advance surface to air missiles and improved sonar. Is this correct?

Answer. That is correct.

Question. As reported, under the plan aging aircraft carrier battle group ships would be gradually moved into less demanding escort jobs, such as protecting auxiliary ships and merchant convoys. Is this in fact the finding of the report?

Answer. SCFRS concluded that the concept of flexible transition was the optimum way to match capability to threat over time, and as a BFC reached mid-way through its service life (approximately the 20 year point) it would be assigned to a mission best suited to its capabilities—in the postulated threat it becomes the Protection of Shipping (POS) ship where it faces a less intense threat.

Question. The report includes the following statement, "The Navy doesn't want any more frigates, no matter that it would help Todd or anybody else alive" one source said. There would be no new frigates or other inexpensive ships built for at least 20 years. "Frigates are just too flimsy", a Navy expert concludes.

This Subcommittee directed the Navy to provide a report on its frigate modernization in its FY 1988 report, and when it was not forthcoming, we repeated it in our FY 1989 report. Will the Navy continue to ignore this request or will this new study make the Navy's plans clear?

Answer. We have not been ignoring your request for a frigate modernization report. We have been working diligently on this as we explore plans for extended service life and affordable combat system improvements for the FF 1052, FFG 7, and other classes of surface combatants. We are trying to evaluate and structure a cost effective modernization plan within the context of continually mandated defense budget reductions. We have almost completed this report and it will be provided to Congress by June 1989.

Question. When will the Navy submit the plan to the Congress?

Answer. We submit a surface combat production plan with each bi-annual budget request. Our most current production plan was submitted in January 1989, and we expect to submit an updated plan in January 1991 with the FY 1992–1993 bi-annual budget. We have not requested frigate production since FY 1983, and we anticipate continuing to request only multi-mission, battle force capable AEGIS destroyers in future budgets. Congress has supported our requests for an all-AEGIS surface combatant production plan since FY 1984, except for one frigate added to the FY 1984 budget by Congress. Our five year shipbuilding plans submitted with the biennial budgets will continue to show an all-AEGIS surface combatant new construction plan, as these have since FY 1984.

Question. There is speculation that the plan will encounter stiff Congressional opposition because it would only provide work for two major shipyards. How does this coincide with industrial base considerations now being addressed?

Answer. Congress has supported our two shipyard competitive strategy for the AEGIS shipbuilding program. Our shipbuilding program, as constrained by mandated defense budget reduction cannot now support price premiums to maintain excess production capacity beyond the immediate efficient, competitive production requirements of our program.

Question. Another expected consequence of the plan is a further decline in the ship repair industry. What implications will this have on the industrial base?

Answer. The size of the naval ship repair industry depends on the size of the Navy and maintenance strategies for the ships. If we can continue to build toward a 600 ship Navy, the size of the naval ship repair industry will remain relatively stable. If mandated defense budget reductions are allowed to erode the size of the Navy, then the naval shipbuilding and repair industry will decline.

SHIP DEPOT MAINTENANCE STUDY

Question. Admiral in your statement you stated: "A recently completed Ship Depot Maintenance Study has provided a detailed plan of action to improve our responsiveness in this area." Could you describe the kind of management improvements and efficiencies called for in this study?

Answer. The Ship Depot Maintenance Study is a comprehensive report which addresses numerous complex issues that impact the ability of depot maintenance facilities to efficiently accomplish their workload. These issues encompass every aspect of the depot maintenance process from internal shipyard operations to high-level Navy policy. A Flag level steering board has been formed to expedite the necessary actions to address these issues.

Question. Will this apply to both public and private shipyards?

Answer. While the issues identified in this study are primarily focused on public shipyards, it is conceivable that resulting policy changes could also have some effect on private shipyards.

Question. I am concerned with recent trends to scale back work packages included in regular ship overhauls. My concern is that while we may be superficially holding to overhaul schedules, the deferred work will cause operational problems and increased costs down the line. What attention is Navy management giving to making sure that we do not undercut a prudent maintenance plan by excessive deferral of work through reduced work packages?

Answer. The Navy is actively involved in assessing maintenance strategies to ensure they support operational requirements in a declining budget environment.

Question. What are your views on the future direction of Navy overhaul and report work, especially as it relates to the industrial base both public and private?

Answer. In general, the amount of depot maintenance required to be accomplished should not appreciably change. However, the trend in depot maintenance will be away from long duration regular overhauls toward shorter more frequent depot availabilities.

SOVIET NAVAL OPERATIONS

Question. While there have been no specific announcements, there have been a number of reports of recent cutbacks in Soviet Naval operations, including their submarine fleet. Can you confirm those reports and what might motivate them?

Answer. In 1988, Soviet Naval units, including submarines, spent more time in port and at anchor and less time at sea than in previous years; they also reduced the extent of distant deployments and exercise activity—especially out-of-area exercises. This reflects not only economic constraints and a desire to portray the military as more defensively oriented for Western consumption, but also shows increased emphasis on developing a close-in, combined-arms counter to the U.S. Maritime Strategy of forward deployment in peacetime and, should deterrence fail, holding the Soviet Union at risk by attack from the sea.

Question. What implications might this have on Western naval requirements if continued?

Answer. The implications of this trend cannot be considered in isolation. Western navies must be able to respond to the capabilities of the Soviet fleet and should not be lulled into merely meeting their current posture. Despite a lower operations temp (OPTEMPO), it is clear that the Soviet Navy continues its qualitative improvement. The Soviet Navy shipbuilding program continues apace, including the construction of the TBILISI class large deck carrier, and Soviet nuclear submarine production maintains a consistently high level of funding. While most Soviet Navy exercises in 1988 emphasized defense of the homeland and submarine bastions, the Soviet Navy, including Soviet Naval Aviation, continued to maintain a presence or routinely use support facilities in a number of strategically important locations around the world. These deployments give the Soviet Navy the capability to monitor and collect intelligence on U.S. and Western Naval operations virtually throughout the world. In short, despite a lower OPTEMPO which is probably driven by fiscal constraints, there is every indication that the Soviets have not abandoned their program to develop a balanced blue water Navy capable of challenging Western interests on a global basis.

The U.S. Navy has the additional responsibility of meeting global commitments not driven by the Soviet threat. Requirements, such as contingency response in regional conflicts, international terrorism and drug trafficking, remain unaffected by the current OPTEMPO of the Soviet Navy.

Question. The Washington Post reported on February 19 that the Chinese were beginning design on an aircraft carrier. Can you shed any light on this? For the longer term, what role do you see the Chinese and Japanese playing in naval warfare? In particular, are there further tasks that the Japanese might pick up in order to improve our buden sharing with them?

Answer. We have no reliable indications that the Chinese have begun design on an aircraft carrier or that they intend to build one.

The Chinese Navy is an effective coastal defense force that is credited with the ability to defend against a maritime attack by any Asian state acting without Superpower support. It has a limited power projection capability within the range of share based air. Although an aircraft carrier would expand their offense capability, the Chinese have demonstrated little interest in this option. The large Chinese submarine force is a potent anti-shipping threat for regional conflicts; however, the force consists in large part of older, less capable platforms that do not present an out-of-area threat. Although the Chinese are known to be developing a submarine launched ballistic missile program, this program is only expected to develop a limited counter value capability which will not change the Navy's emphasis on coastal defense through the 1990's. In sum, the Chinese Navy must be considered a factor in any Asian maritime conflict but it is unlikely to influence out-of-area conflicts involving conventional forces.

Japanese Self-Defense Forces are completing a ten year force improvement which essentially completes the goals of their National Defense Program Outline. Part of the process has included an assumption for sea lane defense to 1000 nautical miles from Tokyo, as well as the declaration that Japanese Maritime Self Defense Force units would defend (and by implication operated with) U.S. Navy forces.

The Japanese must observe strict constitutional and domestic regional constraints on their self defense forces. They are striving for acceptance of expanded Naval roles, missions and force structure. Nevertheless, for the foreseeable future Japan will be limited to defense missions at sea which complement the U.S. Navy's ability to project offensive power.

In addition to defense force improvements, the Japanese are making significant contributions in other areas. These include increasing host nation support for U.S. forces in Japan (currently more than 40% of the cost for these forces are paid for by Japan); continuing technology cooperation and transfer of Japanese developed technology; and continued growth of Japan's ambitious Overseas Development Assistance Program, currently budgeted at more than $10 billion per year.

U.S.-Japan bilateral defense cooperation is a continuing success story. Burdensharing must reflect the U.S. appreciation for limitations on ways in which Japan can participate as well as the Japanese preference for indirect contributions to U.S.-Japan security interests.

ACTIVE/RESERVE FORCE MIX

Question. In recent writings former Secretary Lehman has advocated a major shift to reliance on reserve forces. For the Navy he suggested a mix of 450 active ships and 150 reserve. What are your thoughts on his proposal, and if it was undertaken, what missions and forces would make sense to assign to the reserves?

Answer. The CNO Has stated that he is satisifed with the current active/reserve balance, supporting as it does our strategy, mission, and tasks. He has also said that he does not envision dramatic mission migration in the foreseeable future. He recognizes the Naval Reserve's major contribution to the total force. The successful effort to promote mutual interoperability through modernization of the Naval Reserve will continue and we will further intgegrate the Reserves into the total force.

[Clerk's note.—End of questions submitted by Mr. Dicks.]

COLLISION AVOIDANCE SYSTEM

Mr. **Miller**. I just have one question. We had the Air Force in and we discussed just a couple of days ago about the collision-avoidance system.

As I understand, the FAA requires, or will be requiring, commercial aircraft to have collision avoidance equipment by 1991, if I am not mistaken. Navy planes come over dry land and commercial planes go over the water. If this equipment will be necessary for the commercial planes will your planes have that particular collision avoidance device?

Secretary **Ball**. Congressman Miller, I am not aware of any plans within the Department of the Navy for that. I am not familiar with what system the FAA is requiring. But I will look into that.

Mr. **Miller**. If you would, I guess it is relatively different and relatively new, and you do not need to answer that right now. The Office of Technology Assessment has made a study on this, but I am not sure if it is yet released. But the information has been out.

If you could prepare for the record what might be necessary for the Navy to do—it appears the military planes would need this also.

If you could provide information on that for the record, I would appreciate it.

[Clerk's note.—The Department was unable to provide a response in time to be printed in this hearing volume.]

Mr. **Miller**. Thank you, Mr. Chairman.

Mr. **Murtha**. Thank you, gentlemen, very much.

Mr. Secretary, Admiral Trost and General Gray, we appreciate your appearances. The committee has some additional questions for the record which we would appreciate responses for.

The committee will now adjourn until 10:00 tomorrow.

[CLERK'S NOTE.—Questions submitted for the record and the answers thereto follow:]

BUSH BUDGET REDUCTIONS

Question. President Bush has proposed a $6.4 billion reduction to the fiscal year 1990 Reagan budget for defense. We understand that the Navy's share of this reduction is around $2.3 billion.

What role did you play in determining this allocation?

Answer. Allocation of the reduction was made by the Office of the Secretary of Defense.

Question. What is your understanding of the methodology used in allocating the reduction to the individual services?

Answer. I do not know what methodology was used in this allocation.

Question. What policy guidance did you receive from the Office of the Secretary of Defense in applying this FY 90 budget reduction?

Answer. I received no policy guidance from OSD for use in applying the FY 1990 reduction.

Question. Are you proposing any major program terminations or stretchouts to meet this reduction?

Answer. Given the size of the reduction, I felt it wise to examine all possible adjustments, including program terminations and stretchouts, in order to determine which changes would be least harmful to the preservation of a balanced defense. Proposals for reductions are still being developed within DOD.

MEDICAL CARE IN NAVY

Question. The Navy's budget for medical care in fiscal year 1990 is $1.8 billion, the majority of which ($884 million) is for CHAMPUS expenditures. This large expenditure for CHAMPUS occurs despite Committee direction in fiscal year 1988 to hire an additional 819 military health care providers and an increase of $87.5 million in fiscal year 1989, both actions designed to get patients back into the Navy facilities. What is the Navy doing to increase the availability of care in their medical treatment facilities?

Answer. We are increasing access through numerous health services contracts, have strengthened and invigorated our recruiting efforts, and are enhancing the appeal of an active duty career.

Health services contracts: Facility-specific contracts at each hospital. Also have developed emergency medicine and acute care contracts for 19 naval hospitals; these started in March and 612,000 OPVs are projected for fiscal year 1989. Increased admissions are an additional benefit of this contract. Nursing services, ancillary support, and family practice contracts start in late spring 1989. OB/GYN, Internal Medicine, and Surgery contracts are scheduled for fiscal year 1990.

Partnership Program: 17 naval medical facilities have 24 partnership agreements. The negotiated fees range from 50 to 85 percent of prevailing CHAMPUS rates. Increases access and saves our beneficiaries CHAMPUS co-payments and deductibles.

NAVCARE: 10 clinics with 336,000 OPVs in fiscal year 1988. Fiscal year 1989 projections are for 872,000 OPVs. Government-owned/contractor operated clinics planned for fiscal year 1990 will provide 50,000 additional visits.

Catchment area management, Charleston: Permits use of CHAMPUS funds by local commanding officer to manage healthcare resources and increase beneficiary access to care.

Family practice demonstration project: implementation projected for first quarter fiscal year 1990. Encourages cost-effective use of these physicians and their special skills, increases access for beneficiaries and promotes retention of these specialists. Sites are Newport, Rhode Island; Rota, Spain.

NAVY/VA sharing agreements: 283 agreements at 36 Navy facilities. Considered a CHAMPUS cost avoidance.

Question. What are the constraints to increasing the patient load at your facilities? What legislative proposals are you submitting to Congress to remedy these constraints?

Answer. The past several years the constraints have involved primarily civilian staff shortages in clinical and clerical positions, as well as shortages of military physicians and nurses.

Two general categories represent the majority of civilian occupations that are considered critical and have the greatest shortage: clinical support and clerical support provided to our healthcare practitioners. Clinical support includes nurses (RNs and LPNs); ancillary support personnel in pharmacy, laboratory, and x-ray; clinical psychologists; and family advocacy/social work personnel. Clerical support includes ward clerks, administrative nursing assistants, and medical file clerks.

The universally voiced concern is that the shortage of support personnel affects not only the productivity of military medical treatment facilities but, more importantly, contributes to retention problems with physicians.

Without support personnel our civilian and military physicians cannot practice their skills to the greatest possible extent.

Rather than legislation, the $15 million that Congress added to the fiscal year 1989 appropriations has helped immensely. Our commands have been authorized to hire additional support staff in the clincial and clerical areas discussed. We do need to ensure that enough funds remain available to prevent a recurrence of the staffing shortage.

Question. In the fiscal year 1988 conference report the committees expressed concern about the growing number of physicians in administrative positions. What is the Navy doing to decrease the number of physicians in administrative positions, allowing them to return to patient care? Please provide the number of physicians in administrative positions for each fiscal year 1986 to 1989 and budgeted for 1990?

Answer. The Navy has not decreased the number of physicians in administrative positions. We have approximately 400 administrative positions for which physicians may be assigned. At the end of each fiscal year, an audit is completed to determine the number of physicians assigned to administrative positions.

We believe the number will remain relatively constant at 90 physicians, which is approximately 2 percent of the Medical Corps inventory. This number is justified if you consider the positions which are included in the category—surgeon general; other medical corps flag officer positions; physicians in positions of commanding officer or executive officer at medical treatment facilities; staff positions which require medical officer expertise, such as force medical officers with SURFLANT and AIRLANT; physicians on the staff of the Naval Medical Command, such as the coordinator of graduate medical education; physicians assigned to our geographic medical commands; and those physicians assigned in support of the Assistant Secretary of Defense (Health Affairs).

Physicians assigned in the management of the Naval Medical Department are needed to train and acclimate other physicians for administrative responsibility. Before attaining flag rank, it is necessary for physicians to have been assigned to positions which prepare them for increasing levels of responsibility and leadership and to have been evaluated in these positions.

Question. The fiscal year 1989 Navy request included five New Threat Upgrades (NTUs), two of which were slated for competition between public and private yards. The fiscal year 1989 conference report required the Navy to perform six NTUs, competing four NTUs between public and private yards. This was a compromise position between the House position limiting competition to three ships and the Senate which directed the Navy to compete all six ships.

What is the current schedule of ships undergoing a New Threat Upgrade in fiscal year 1989? When will bids be requested for the four ships slated by competition?

Answer.

Ship:	Start date:
USS *Worden* (CG 18)	03 October 1988
USS *Horne* (CG 30)	31 October 1988
USS *Halsey* (CG 23)	14 August 1989
USS *Callaghan* (DDG 994)	09 June 1989
USS *Chandler* (DDG 996)	14 August 1989
USS *Fox* (CG 33)	30 September 1989

Ship:	Issue/solicitation:
USS *Fox* (CG 33)	03 February 1989
USS *Halsey* (CG 23)	10 May 1989
USS *Callaghan* (DDG 994)	02 December 1988
USS *Chandler* (DDG 996)	02 December 1988

Question. What are the Navy's plans for the NTU program in fiscal year 1990?

Answer.

Ship:	Shipyard:
USS *Gridley* (CG 21)	Public/Private Competition
USS *California* (CGN 36)	NAVSHIPYARD Puget Sound
USS *Wainwright* (CG 28)	Public/Private Competition
USS *W.H. Standley* (CG 32)	Public/Private Competition

Question. The fiscal year 1989 conference action increased the Navy's ship maintenance budget by $120 million for West Coast repair work; $60 million was required for the one NTU added above the budget. What has the Navy done to identify and obligate the other $60 million in funding for West Coast repair work? Please provide a break out of the type of work to be funded and the facility which will receive the additional funding.

[In millions of dollars]

	Repair	FMP	Total
NTU ROH for USS FOX	35.0	17.335	52.335
RATA	10.5		10.5
FMP		56.5	56.5
Total West Coast	45.5	73.835	119.335
Repair	[1] 5.0	[2] 5.5	
FMP	[1] 2.67	[2] 51.26	

[1] Public.
[2] Private.

Totals of dollars may not correspond to other totals due to rounding.

Repair and modernization funds have been utilized to augment existing availabilities as follows:

The Puget Sound public sector has been assigned three surface ship availabilities: $2.67 million on two ships to accomplish additional combat systems and communication systems alterations, and $5.5 million to accomplish additional repairs to the propulsion plant on one ship.

The United States Navy's Yokosuka ship repair facility has been assigned one Japan homeported ship availability: $1.7 million to accomplish various additional alterations on a propulsion plant.

The United States Navy's Guam ship repair facility has been assigned two Guam homeported ship availabilities: $1.41 million to accomplish additional alterations to firefighting systems.

The Long Beach private sector has been assigned six ship availabilities: $20.95 million on four different ships to accomplish additional combat system and communication systems alterations, and $3.705 million to accomplish additional alterations to firefighting systems on two ships.

The Seattle private sector has been assigned one ship availability: $1.72 million to accomplish additional alterations to firefighting system.

The San Diego private sector has been assigned nine ship availabilities: $7.715 million on four ships to accomplish additional combat systems and communication systems alterations, $5.07 million to accomplish additional alterations to firefighting systems on three ships, and $5.2 million to accomplish various additional repairs to the propulsion plants of two ships.

The Pearl Harbor private sector has been assigned one ship availability: $1 million to accomplish various additional alterations to the propulsion plant.

The San Francisco private sector has been assigned three ship availabilities: $.38 million on one ship to accomplish crew living space alterations, $1.0 million to accomplish additional alterations to firefighting systems on one ship, and $1.7 million to accomplish various alterations to one ship's propulsion plant.

Question. Additionally, the fiscal year 1989 conference report included $120 million increase for East Coast repair work, with emphasis on VLS upgrades. What has the Navy done to identify and obligate this $120 million, and what portion is for VLS upgrades? Please provide a break out of the type of work to be funded and the facility which will receive the additional funding.

Answer.

[In millions of dollars]

	Repair	FMP	Total
RATA	42.85	9.75	52.60
ROH	66.01	1.39	67.40
Total East Coast	108.86	11.14	120.00
Repair	[1] 63.91	[2] 45.18	
FMP	[1] .98	[2] 11.51	

[1] Public.

[2] Private.

Numbers may not be exactly correct due to rounding off. Due to ships' operational schedules and contract development lead times, there were no VLS upgrade availabilities that could be accelerated into fiscal year 1989.

The Boston area private sector has been assigned one additional surface ship availability: $3.75 million to accomplish various repairs and combat systems alterations.

The Jacksonville area private sector has been assigned two additional surface ship availabilities: $4.5 million to accomplish various repairs; and $.8 million for alterations to the firefighting, ASW, CHT upgrades and mine counter measure upgrades.

The Norfolk area private sector has been assigned six additional surface ship availabilities: $25.01 million to accomplish various repairs, $6.28 million for alterations to the firefighting systems.

The Charleston private sector has been assigned two additional surface ships availabilities: $5.94 million for various repairs and $.43 million for alterations.

The Charleston public sector has been assigned one additional surface ship availability: $6.41 million for repairs and $3.57 million for alterations. The Norfolk public sector has been assigned one additional submarine availability: $64.89 million for repairs and modernization.

NAVY VERSION OF THE ADVANCED TACTICAL FIGHTER

Question. The Navy's current budget submission includes RDT&E funds in each of the next five years to continue development of a Navy version of the Air Force-led Advanced Tactical Fighter (ATF). Is the Navy firmly committed to developing and procuring a variant of the ATF?

Answer. The Navy is fully committed to the development of the Navy version of the Advanced Tactical Fighter. Ongoing work with the Air Force has resulted in great strides toward our mutual goal of affordable joint service fighter aircraft. The inter-service cooperative spirit evidenced to date will continue to characterize this program.

In January of this year, the Navy and Air Force updated their March 1986 Memorandum of Understanding.

Question. Are there technical challenges that you foresee that might cause the Navy to reconsider its plans to develop a Navy ATF, and if so, what are those technical issues and when will they be resolved?

Answer. Designing an aircraft with acceptable size for its mission that can safely take off and land on a carrier is a significant technical challenge. In addition to carrier suitability the aircraft must include a multi-mission capability. The ATF program must meet these two basic requirements. Both of these technical challenges are being addressed from the outset of ATF/NATF design considerations.

Question. In your personal view, how likely is it that the Navy will remain in the ATF program, given those challenges?

Answer. At this time there are no known technical issues so insurmountable as to cause the Navy to reconsider its plan to develop a Navy ATF.

ANTI-SATELLITE WEAPONS

Question. The Navy requests $95 million in fiscal year 1990 to begin development of a new anti-satellite (ASAT) weapon. Why should this be funded in the Navy instead of by the Office of the Secretary of Defense, given the multi-service interest in ASAT technology?

Answer. The Defense Acquisition Board concluded that a multi-pronged approach is required to develop a national ASAT capability. The Defense Acquisition Board also established a Joint Program Office for the surface-based Kinetic Energy weapon development with the Army as the interim lead service since they are leading the ground-based interceptor development activity for SDIO. The Navy will provide the Deputy Program Manager. The lead service responsibility will also be reviewed at that time, as well as options for sea- and land-basing versions for final concept selection. The Air Force will be the lead service for the space surveillance and battle management system.

A-6 ATTACK AIRCRAFT

Question. In the fiscal year 1990 budget, the Navy terminates plans to develop additional upgrades to the A-6 attack aircraft beyond the existing A-6E "SWIP" variant. Fleet CINC's and other representatives of the A-6 operational community have emphasized to the Committee that further upgrades are desirable.

Was this decision based purely on budgetary constraints?

Answer. Yes. The OSD decision (in PBD #113) to terminate A-6G remanufacture development and acquisition was financially driven. The operational requirement was acknowledged.

Question. Without further upgrades such as were envisioned in the A-6 "F" or "G" variants, will the A-6 meet its anticipated threat throughout its lifetime?

Answer. The simple answer is no, not throughout its lifetime. As the expected threat evolves, additional capability and survivability improvements beyond those currently funded in the President's Budget would be required, as in all weapon systems. The A-6E SWIP's as currently funded, is capable of meeting the current threat, but as that threat increases through the 90's, the A-6E will become progressively less capable of accomplishing its assigned mission, particularly in the land-attack role.

The A-6G was not designed as a substitute for the A-12; it is an interim measure to assure the viability of the medium attack force until the transition to the A-12 is complete. The A-6E SWIP provides a capability for each Battle Group Commander to encounter the expected and diverse threats with acceptable risk. The A-12 is expected to meet these future threats.

Question. Since this decision was based primarily on funding constraints, it is assumed that the Navy would support additional upgrades if, during the course of deliberations this year, funds were located for this purpose. If funds were made available to continue development of high priority upgrades, in your view what should be included in that plan, and what would be the funding requirement in FY 1990?

Answer. The Navy's budget is a balanced program based upon available resources with an acceptable level of risk. The Navy would not support any additional upgrades at this time; however, if additional funds were available, they would be applied toward highest priority survivability upgrades. The Navy is evaluating several options which would improve survivability in the future.

AVIATION PROGRAMS

Question. Project "February" was conducted last year to examine the future of Naval aviation. What were the recommendations of project "February" and what specific items are included in the 1990 budget to carry out those recommendations?

Answer. Project February was tasked to develop a conceptual look into the future of Naval aviation—Circa 2010. Members were challenged to be "bold and innovative" and provide a "vision." Among the recommendations that were generated were:

the need to view the CVBG/CVW as an integral unit whose individual parts are collectively developed and employed in a synergistic manner
the importance of fusing and sharing information on a real time basis
provide EW gear that is "built-in" rather than retrofitted
the need to "neckdown" in both weapons and aircraft
fewer types of both with inherent commonality
more standoff weapons
the requirement to stress ASW sensors over platforms
the criticality of stealth in both aircraft and weapons

Because Project February was conducted in the waning days of Naval aviation's FY 1990 budget preparations and because of its futuristic charter, it had no real impact on the FYDP beginning in FY 1990. It did reaffirm that the course for the future (even 20 years hence) is well established and will be fiscally restrained. Its recommendations have had a strong effect on subsequent Naval aviation planning and will affect future FYDPs.

Question. Last year the Congressional Budget Office identified shortfalls in Naval aircraft inventories. What actions are you pursuing to alleviate these shortfalls?

Answer. The FY 1989 Defense Authorization Act raised a similar question which is addressed in the Naval Aviation Report (NAR) about to be released by OSD. The Navy continually manages air wing composition to meet the fleet commanders' needs as aircraft inventories change and requirements vary. Proven initiatives are employed; they include asset reallocation, crossdecking and pipeline management.

Question. The A-12 and F-14D programs include enhancements to the aircraft survivability which would indicate their missions could be performed with fewer aircraft. As a result, is the carrier air wing structure being changed? What implications would such a change have for the current budget?

Answer. The A-12 will be a very survivable aircraft.

As a stealth aircraft, it brings to the carrier an entirely new class of aircraft.

Stealth brings with it new ways of performing existing missions and new missions that can be performed.

Carrier Air Wing Study 89 (CAWS-89) is studying in detail the impact of the A-12 and F-14D programs on the airwing structure. That analysis will not be completed until the fall of 1989.

Question. The aircraft modifications budget in 1990 is about $600 million compared to $930 million in 1989 and $1.3 billion in 1987. Why is the request so low and is it adequate to meet requirements?

Answer. The President's budget requests for APN-5 (aircraft modifications) have been consistent during the last three years.

Fiscal year:	*Million*
1988	$668
1989	667
1990	600

Congress deemed levels of appropriations for aircraft modifications were inconsistent with decisions to procure fewer aircraft and increased the budget requests.

Congressional appropriation

Fiscal year:	*Million*
1988	$905
1989	990

The President's budget request is adequate to meet aircraft modification requirements based on overall program balance, affordability, and executability.

The Navy is making every effort to stay within the full funding concept while reducing aircraft modification installation backlog. The reduced level of FY 1990 funding reflects an attempt to reduce this backlog and better balance new kit purchases and installation capability. FY 1990 O&MN installation funds have correspondingly been increased to minimize the installation backlog.

APN-5 resources should be reviewed in the context of the Congressionally supported decision to finance aircraft remanufacture programs within the APN-1 account; for example:

[Fiscal year 1990]

Program:	*Million*
F-14D	$342

EA-6B	130
Total	472

Question. What is the acquisition strategy you are now considering for the V-22 program?

Answer. The procurement strategy for this aircraft is still under review by the Department. All aspects of both competitive and co-production strategies are being evaluated and cost avoidance will be a major determining factor in deciding the ultimate procurement strategy.

Question. Given the delay in first flight of the V-22, will you be ready to start production in 1990 as proposed in the budget?

Answer. Yes, if no other problems arise.

SHIPBUILDING PROGRAMS

Question. The budget includes funding for two LOS ANGELES Class submarines in 1990 to complete the program. Previously there was a requirement for five submarines to complete the program. What factors changed to allow for the lower number of submarines to perform the mission? Why are the 1990 submarines projected to cost 20 percent more than the 1989 program?

Answer. During the FY 1990 budget preparations, the Navy conducted an in-depth review of the SSN-688 and SSN-21 proposed building plans. Several issues were considered during this review; the attainment of the 100 SSN force level, an orderly transition from the SSN-688 building program to the SSN-21 building program at our two new construction shipyards and the optimum utilization of fiscally constrained SCN funds. As a result of this review, it was decided to end SSN-688 production in FY 1990 when no SSN-21s are being built and shift to SSN-21 production only in FY 1991 and out-years. This decision would allow an orderly transition of production assets and send a clear message to the shipyards that the Navy is committed to the SSN-21.

The cost of the SSN-688 program for FY 1990 (FY 1990 Congressional submission) is $249 million greater than that for FY 1989 appropriation. The primary reasons for the increase are as follows: selected improvements in the FY 1990 ships; an increase in design plan costs (as this is the final program year and design support must be budgeted for the period FY 1990 through FY 1996), and a more realistic projection of basic contract costs consistent with recent contractor proposals and performance.

Question. What has caused the significant increase in construction time for *Los Angeles* class submarines?

SSN-750 at Newport News is now scheduled for 79 months vice 61 months projected in January 1986.

SSN-757 at Electric Boat is now scheduled for 60 months vice 50 months projected in January 1986.

To what extent will the schedule change increase the Government's cost of these contracts?

Answer. The increase in construction time for SSN-688 Class submarines is attributable to a number of factors, foremost among them the overly optimistic schedules proposed by the shipbuilders in the proposals. For the SSN-750 at Newport News, the shipbuilder did not allocate sufficient manpower to the ship to meet the construction schedule. Additionally, Newport News Shipbuilding encountered problems with the testing and alignment of the propulsion plant and deficiencies with the GFE furnished Ship Service Motor Generators. Resolution of these issues was time consuming and contributed to the aforementioned delay. For the SSN-757 Electric Boat Division could not hire skilled personnel in sufficient numbers to adhere to the initial schedule. The company cited the tight labor market in New England as the reason for its failure to bring onboard early in the construction process enough manpower. Furthermore, we have made product performance improvements to respond to the evolving threat. The shipbuilders have encountered problems with incorporating these improvements into the SSN-688 class.

These schedule changes will contribute to the over target cost increase; however, the cost impact is not quantifiable.

STANDARD AUTOMATED FINANCIAL SYSTEM

Question. This computer system was originally planned to cost $38 million but was recently terminated after cost growth to $500 million. Mr. Ball, please explain your recent decision to terminate STAFS. What went wrong?

Answer. Initiated in 1978, the STAFS was to be a turnkey effort with an initial contract cost of $39.2 million. The design of the system was necessarily complex owing to the requirements for single point data entry, paperless processing and a single, integrated data base for each Navy laboratory. It was further complicated by the requirement to accommodate additional features to be included within the standard system at the direction of the user group. As a result, the design team defined an overly ambitious system and there were no central constraints to contain requirements until the Assistant Secretary of the Navy for Financial Management initiated funding caps in late 1984. User activity costs charged to the project were unknown to the project manager until a special budget call in March 1988.

In April 1988, the commanders of four of the five major sponsoring commands recommended the project be terminated. In view of the accelerating cost of the project, we reassessed the need for STAFS and examined alternatives. Our review confirmed that STAFS was a high-cost and high-risk solution to the problem of standardization. Eight of the sites were already using the proper management systems, and we determined that the remaining six could be brought into compliance within three years and at a life cycle cost some $200 million less than STAFS. After due consideration of these alternatives, the decision was made to terminate the STAFS initiative.

Question. We understand the Navy spent $120 million up to the point of termination. Why did it take that long to realize that something was wrong?

Answer. Management of the STAFS Program by committee resulted in a system that was unable to meet all user unique requirements. This was not realized until the implementation process began. Implementation problems at the first STAFS site were credited to "initial growing pains" associated with installing a revolutionary system and the process continued. Further attempts to implement STAFS at other activities revealed additional functional deficiencies. The significant nature and broad scope of these problems, taken collectively, prompted (in part) the April 1988 termination recommendation noted above and caused us to conduct a detailed review of STAFS's efficacy.

Question. What will be done with the equipment that has been paid for under this contract?

Answer. STAFS was planned for 14 Naval laboratories and engineering activities located at China Lake, CA; San Diego, CA; Port Hueneme, CA; Panama City, FL; Point Mugu, CA; Patuxent River, MD; Carderock, MD; Warminster, PA; Dahlgren, VA; Newport, RI; Lakehurst, NJ; Indianapolis, IN; and Washington, DC. Computer equipment was installed at these sites, the central design activity and the contractor development site at San Diego, CA. The hardware was installed and has been in use since 1983. With the termination of the program, the hardware located at the central design activity and the contractor facility is being redistributed within the laboratory community.

Question. How will the original requirement to introduce a standardized accounting system into the Navy's labs be accomplished now that STAFS is dead?

Answer. After consultations with the OSD staff, the Naval Audit Service, representatives of the General Accounting Office and the Office of Management and Budget, we determined that a standard ADP accounting system was not required to comply with existing requirements for accounting systems. The hypothesis was that a standard ADP system would be more cost effective. Our analysis indicated this to be wrong.

The preparatory work for STAFS has clearly resulted in a general improvement of financial records. The project provided financial management training and policy review for a number of users. The improvements in procedures and practices at all STAFS sites are the result of the efforts to define a common general ledger structure and to develop, promulgate and implement standard procedures. We believe standard procedures are in use at these activities as a result. The Navy has verified the current state of affected financial systems through on-site reviews. We have verified that a standard, multi-activity accounting system can be achieved without relying on a single standard software application.

Question. How effective was Navy management of this acquisition?

Answer. As the Assistant Secretary of the Navy for Financial Management testified before the Government Operations Committee on 13 September 1988, the Navy's management of the STAFS program was not effective. Because we made allowance for full user participation in the project, we believed the program was proceeding satisfactorily. However, when implementation was attempted in the late 1987 and early 1988 time frame at four sites, several unanticipated problems surfaced. In retrospect, it seems clear that we attempted to standardize functions that simply cannot be standardized in software designed to be used in a variety of laboratories.

Question. The Congress has had a legislative provision prohibiting expenditure of funds on ADP systems which have not undergone the proper management oversight reviews required by DOD regulations. Was STAFS subjected to the required oversight reviews by the Navy and OSD?

Answer. The STAFS effort has been in compliance with requirements for reviews and approvals since approval of the ADS Development Plan (SDP I) by the Assistant Secretary of the Navy (Financial Management) in October 1980.

Question. When was a MAISRC review conducted on STAFS?

Answer. STAFS has not undergone a MAISRC review. Estimated costs did not breach DOD limits until the impact of significant changes in funding policy ordered by the OSD were reviewed in early 1988.

At the time OSD oversight authorities were notified and a MAISRC was scheduled for October 1988. Spending was limited to the minimum necessary to support the Central Design Activity (CDA) and the operational site pending MAISRC review. Assessments made of the future operational costs of STAFS and the visibility of previously unreported costs incurred at the target sites led to a series of reviews resulting in STAFS termination. The October MAISRC was delayed while a GAO-recommended analysis of alternatives was completed. This analysis led to the final termination decision.

Question. How much did the Navy spend on STAFS during the period the congressional prohibition was in effect?

Answer. By virtue of the fact that STAFS was, at all times, in compliance with requirements for reviews and approvals, the program was never in violation of a congressional spending prohibition. As of the end of fiscal year 1988, over $218 million had been spent on STAFS-related activities since its inception in 1978. Approximately $65 million of this amount was spent by the laboratories and engineering activities on local site activities preparing for STAFS implementation. The balance includes hardware for all the sites, development of the system and its support documentation, testing and integration, and management by a central design activity. The prime contractor received some $118 million, the independent validation and verification contractor received $15.9 million and approximately $20.9 million was required for the Navy's central design acitivity. These funds have been expended and accounted for in accordance with applicable public laws.

Question. Did the Navy violate the law?

Answer. As previously discussed STAFS was, at all times, in compliance with requirements for reviews and approvals, and the program was never in violation of a congressional spending prohibition. The funds have been expended and accounted for in accordance with applicable public laws.

DOD IG ADP REPORT

Question. Navy spends over $2 billion annually on ADP. In February, the DOD Inspector General published a report stating Navy has:

not implemented DOD procedures for monitoring schedule and cost changes during development of information systems;

ineffective policies to require verification or methods to accomplish monitoring of benefits to be derived from automation;

inadequate procedures for obtaining schedule and cost data;

no policy for controlling reassignment of project managers, training new project managers, or ensuring overlap of departing and incoming project managers whenever feasible;

inadequate controls to prevent duplicate software development;

ineffective procedures for documenting software requirements and associated development costs;

ineffective controls to ensure adequate program oversight;

inadequate standardization of financial, supply, and personnel systems;

inadequate and inaccurate data for monitoring ADP equipment;

incompetent ADP procurement and purchasing personnel due to lack of training;

inadequate guidance to ensure effective oversight of office automation initiatives and lack of standardization across Navy; and

inadequate guidance for procurement of ADP resources.

Why is Navy ADP such a mess?

Answer. I believe that we have an effective ADP program in the Navy. In spite of the problems inherent in standardizing support for a variety of commands both afloat and ashore, the percent of our total budget spent on ADP is consistent with DOD as a whole.

Over the past ten years, we have initiated a number of actions to improve our management of our ADP dollars. They include:

Creating a separate office for managing ADP systems under a flag officer.

Developing planning processes that enable us to improve interfaces between systems and eliminate redundancies.

Developing a series of information flow architectures to simplify and improve the way our ADP support is structured.

Strengthening oversight of large ADP projects (In August, we established a requirement for a senior-level review board for review of projects at major milestones before approval to proceed is granted. We are currently revising the instruction to designate the Under Secretary of the Navy as chairman of the executive board).

Assuring that we use existing resources efficiently by disallowing purchase of new ADP equipment until it is clear that requested resources are not available at our Navy Regional Data Automation Centers.

As Assistant Secretary Conn explained to the Committee in a 1986 letter, we believe we have an active, progressive IRM program, set in a streamlined organization, constantly striving for improvement and already producing concrete results.

Question. Have you personally read the IG report?

Answer. I have, and I am aware of improvements that are a result of actions which have been taken to strengthen ADP management in the Navy. For instance, as mentioned earlier, oversight of major automated information systems has been improved by establishing an Executive Board which will be chaired by the Under Secretary of the Navy. In August 1988, we issued guidance which prohibited Navy contracting officers from processing any requests for procurement of ADP resources unless certification could be made that those resources were not available from the Navy Regional Data Automation Centers (NARDAC). We have issued direction that requires major ADP projects to establish programmatic baselines, and these baselines will be used to monitor projects at each major project milestone. I am optimistic that these reforms will correct several of the problems alluded to earlier.

Question. Navy ADP problems were discussed at length in our Committee reports in the late 1970's. Why do the same problems persist ten years later?

Answer. Many of the problems identified ten years ago do not exist today, or are considerably less severe. For instance, eight years ago, the Surveys and Investigations staff criticized us for failing to develop standard systems to replace duplicative systems at Navy activities. Since that time, the Department of the Navy has implemented standard, Navy-wide systems in a number of areas such as personnel, pay and aviation maintenance.

As mentioned earlier, we corrected problems resulting from the lack of high-level attention to ADP by establishing a separate division for ADP within the directorate of Command, Control and Communications. In addition, we assigned a flag officer to direct the division. Finally, the Assistant Secretary of the Navy for Financial Management has given attention to ADP Management since 1981. More recently the Under Secretary of the Navy has become directly involved in overseeing ADP programs.

Question. A number of National Academy of Science studies sponsored by the Navy in the early 1980's show "lack of commitment by Navy leadership" as the Number One problem. How would you characterize Navy leadership's commitment to effective ADP management?

Answer. Our commitment to effective ADP management can best be characterized as active, aggressive pursuit of the best management structure for flexible control consistent with (1) mission accomplishment and (2) the dynamic changes in the capabilities of the information processing technology.

Even before the National Academy of Science completed their study, the Department began implementing the recommendations. We created a focal point on the OPNAV staff, the Information Systems Division in the Command and Control Directorate to address the spectrum of information support. This office is responsible to the Secretary of the Navy as well as the Chief of Naval Operations.

Navy views planning as the cornerstone of the effort to provide effective information support. Navy's information management planning includes a top-down strategic information management plan tied to Navy's overall maritime strategy and other plans for executing its mission. Starting with the Secretary's and CNO's posture statements to Congress, published warfare and business strategies are reviewed in developing the Strategic Information Plan. The Plan stresses functional line manager involvement. It points out the essentiality of tying information systems to mission accomplishment. Functional sponsors responsible for areas such as financial and personnel provide plans to the major claimants so they in turn can plan information support for their entire organization.

The Navy information architecture techniques complements our planning. This approach encompasses identifying and documenting the business processes necessary to accomplish the mission, measures of effectiveness to determine how well we are achieving the mission, and the information required.

Question. What does it mean to a Naval Officer's career to get an ADP assignment?

Answer. It is customary for Naval line officers to qualify in a subspeciality and to serve one or more tours in that field. It is a normal progression in an officer's career. Performance in the warfare speciality has been and will continue to be a major factor in a successful career.

Although the DOD IG report expressed concern about handling of ADP program management assignments, ADP subspecialists are normally assigned to program management jobs only after extensive experience or post-graduate education in ADP. The Navy's Postgraduate School in Monterey, California is a primary source for postgraduate degrees in Computer Science and Computer Systems Management. Additionally, program managers receive training in project management and acquisition management at the Department of Defense Computer Institute. We are currently participating with the Department of Defense in review of training requirements.

To the individual officer, an assignment to the ADP field fits well into most career patterns in the normal sea duty and shore duty rotation. With a subspecialty in the information resources management, an officer can expect to be assigned a challenging position as a junior officer to gain experience in the ADP field and then later in his or her career can expect to assume a more important role as an ADP subspecialist.

Question. What have you done to foster the use of standard systems across the Navy rather than allowing major commands and even smaller organizations to pursue small, fragmented, uncoordinated, and incompatible ADP acquisitions?

Answer. Standard systems are fostered through planning and functional compatibility oversight of AISs. We have identified top-level functional sponsors with oversight responsibility for assuring that duplicative systems are not being developed within a functional area. The functional sponsors prepare annual plans that address functional, mission linked information management approaches over a five year period. Annually, these plans are reviewed at a Navy-wide Information Resources Planning Conference chaired by the Director, DON IRM. This review results in issuance of annual guidance out of the Office of ASN(FM). The result is Navy-wide, coordination of our information system development and acquisition processes.

As early as 1979 we established a graduated scale of ADP approval authority based on dollar values commensurate with effective accomplishment of mission. No acquisition of information technology resources is permitted to take place without prior approval.

Question. Last year the Committee expressed great dissatisfaction with Navy ADP, and reduced the budget accordingly by $93 million. What changes have you made as a result?

Answer. As previously discussed, we have strengthened oversight by creating an Information Systems Executive Board and have required the use of existing Navy Regional Data Automation Center's recources to satisfy information resources requirements. Additionally, we have reviewed the requirements for use of interagency agreements with the Department of Energy and having significantly reduced the services we were acquiring from DOE

Question. Provide for the record a detailed accounting of how the $93 million reduction was applied, and how the Congressional guidance to apply these reductions specifically to field ADP activities was accomplished.

Answer. Since current accounting data does not track ADP costs by the specific functions identified in the conference report, we distributed the FY 1989 Congressional general reduction of $93.1 million where known operational, logistics and administrative ADP systems exist. Reductions of $5.6 million to Strategic Forces; $17.0 million to General Purpose Forces; $4.5 million to Intelligence and Communications; $0.3 million to Airlift and Sealift; $56.4 million to Central Supply and Maintenance; $4.1 million to Training, Medical and Other General Purpose Activities; and $5.2 million to Administration and Associated Activities were applied to reflect this general reduction.

Question. Provide for the record a detailed description of Navy actions in response to each recommendation of the DOD IG report.

Answer. We welcomed the recommendations of the DOG IG and in fact, many of the actions recommended by the draft report were already underway. At attachment A, I have provided comments for the record on actions taken or planned in response to DOD IG recommendations.

1. Lack of Automated Information System (AIS) Baseline Policy. Secretary of Navy Notice 5231, Baselining of Information System (IS) Projects, was issued on 8 November 1988. This notice requires baselining of all IS projects subject to review and approval at the DON IS Executive Board level or above, and encourages the application of baselining principles to those IS projects subject to review and approval at lower levels.

2. Inadequate AIS Benefits Analysis. We are working with DOD Comptroller personnel to explore the feasiblity of a DOD-wide approach to the identification and measurement of information system benefits.

3. Ineffective Cost/Schedule Tracking Procedures. We are reviewing the process used by the Marine Corps to ascertain if it is viable for DON-wide use. Upon completion of our review, we will promulgate appropriate procedures for the Navy.

4. Deficiencies in AIS Project Manager Accountability. Supplemental guidance is being prepared which covers the initial assignment and relief of project managers, including minimum training courses or equivalent experience required for managing major IS projects.

5. Ineffective Management of Software Development. We agree that effective sharing of ADP system software development and

maintenance information could reduce redundant ADP systems; however, to ensure that all Department of Navy software is reported to Uniform Query of Navy Computer Software (UNIQUE) would overwhelm any management vehicle in place for the exchange of software among comments. The Federal Software Exchange Center (FSEC) has criteria for software which should be reported and shared. We are updating our policy and procedures to comply with FSEC requirements.

6. Lack of Accounting for Software Costs. We issued a Naval Data Automation Command publication on economic analysis for ADP systems several years ago which have been widely distributed within the Navy and adopted for use by some civilian agencies. In addition, we have instituted an independent cost estimating review for major ADP systems. We will work with DOD Comptroller personnel to develop any additional DOD-wide policies and procedures on software cost accounting.

7. Inadequate Quality Assurance Oversight. We have completed an aggressive revision of our procedures for providing quality assurance and oversight of AIS programs. On 9 December 1988, Secretary of Navy Instruction 5231.3 was issued to enhance Secretary of Navy Instruction 5231.1, "Quality Assurance Program for Information System Projects." The latest issuance establishes a Department of the Navy Information System Executive Board which includes system test and evaluation organization membership. We are confident that this recently established oversight body will correct the deficiencies identified in the report.

8. Insufficient Standardization of AISs. We have a number of initiatives in progress to improve standardization of AISs throughout the Navy. An infrastructure currently exists by which Functional Sponsors maintain oversight and issue guidance for AISs within their functional areas. The policies establishing this infrastructure are contained in SECNAV Instruction 5230.10 "DON Strategic Plan for Managing Information and Related Resources," last updated 3 August 1988. Secretary of Navy Instruction 5230.9A, "Information Resources Program Planning," of 16 October 1985, is currently under revision and will improve upon the functional sponsor planning process. The aforementioned initiatives were undertaken in recognition of the benefits of AIS standardization.

9. Inaccurate AIS Acquisition Data. With the cooperation of the Defense Logistics Agency, we have taken steps to implement the Automated Resources Management System (ARMS) in order to improve our ADP resources management. The current Secretary of Navy directive for managing the ADP equipment inventory was completely rewritten to accommodate the new system. It will directly implement ARMS, under which not only the ADP equipment inventory will be managed, but also opportunities for sharing and reutilization or redistribution of excess federal ADP resources. Department of Navy components and activities will be required to update their ADP equipment inventories by 30 September 1989 and certify their accuracy by 31 October 1989.

10. Insufficient Training of Acquisition Personnel. We are reviewing existing training programs and will promulgate guidance regarding minimum training requirements for personnel assigned ADP procurement and purchasing duties.

11. Lack of Afloat AIS Cost-Accrual Procedures. Department of Navy will explore the need for afloat AIS cost-accrual procedures and will issue appropriate guidance as soon as possible.

12. Inadequate Office Automation Oversignt. We currently have a project under-way to automate Navy Department offices in the Pentagon and in closely related offices outside the Pentagon. As part of the development of this effort, the potential for concurrent staff reductions is being evaluated from a cost/benefits stand-point. This effort will provide the genesis for Navy-wide guidance regarding office automation system project procedures and approval.

13. Inadequate ADP Resource Acquisition Policy. We have prepared a draft Secretary of Navy instruction with consolidates and updates many current Department of Navy acquisition-related instructions and other current, relevant policies.

S&I REPORT ON NAVY ADP

Question. In December, the Committee's Surveys and Investigative Staff published a report on selected DOD ADP issues. Concerning Navy, our investigators found much unused capacity in the Navy's Regional Data Automation Centers which spend about $200 million annually while other Navy organizations were duplicating it. Most disturbing was a specific finding of a Navy organization installing its own computer center in the same building where an underutilized regional data center was located. Have you read our Committee's and Investigations Staff Report?

Answer. The report was released by the Committee on 24 February 1989, and is under review by the appropriate Navy officials. I have not personally read the report. We intend to meet the response requirement set by the Committee.

Question. After building a country-wide data processing network, why do we have no policies requiring use?

Answer. We do have a policy supporting use of the Navy Regional Data Automation Centers. From the time the centers were established, we have required all Navy organizations to include use of the centers among the alternatives considered for satisfying ADP requirements. Last August, we strengthened the policy to require that activities obtain a written waiver from the centers before they acquire computers in-house. In some instances, the regional centers may not be the most cost-effective provider of the required service. We are aggressively expanding the role of the regional centers and expect to see positive effects from our cost cutting efforts in the regional centers.

Question. Let me quote from the report:

For more than two decades, Navy ADP and IRM have been the subjects of reviews and studies by the Congress, the GAO, the National Academy of Sciences, and the Navy itself. The findings of these reviews and studies have been consistent. Management of ADP and information resources by the Department of the Navy has been described as unstructured, highly decentralized with local management having too much authority and influence over systems development, generally inefficient and wasteful. . ."

Do you share this assessment, and if so what causes these persistent problems?

Answer. We do not share the assessment that we are generally inefficient and wasteful of our ADP dollars. Despite the fact that we must support deployed units around the world as well as a shore establishment, we are spending a lower percentage of our budget on ADP than the remainder of DoD is spending. On the question of decentralization, the Navy itself is a decentrailzed organization. We've tried to give local commanders the authority needed to accomplish their missions. While the decentralization originated with the Commanding Officers of ships at sea, it was carried over to an appropriate degree to Commanders ashore.

With decentralization of ADP there is a risk of overlapping systems. For this reason, ADP is more centrally managed than some other Navy functions. Over the two decades cited in the report the Navy has responded to each study and review, continually moving to strengthen the management and performance of ADP information resources. The challenge to utilize information technology in an efficient manner is a continuing one-and one which we are determined to meet.

Question. Tell us of your plans and priorities to improve the Navy's management of its $2 billion annual ADP budget.

Answer. We place first priority on support of mission accomplishment. The National Academy of Sciences study of Navy ADP stressed this point. When well tuned to customer needs, information technology offers a force multiplier of tremendous potential. Without functioning ADP systems, this Department could not operate today. Therefore, we have developed an information resources planning structure firmly based on the business plans of the Department. That structure provides for top-down information resources management guidance, botton-up component planning, and cross-cutting functional area plans and guidance. Twice a year functional sponsors and component managers meet in planning sessions to assure full coordination. Top functional and line managers must do this planning, and we have experienced increasing success in obtaining this commitment. We use information flow and data architectures to assure clear and common understanding of requirements and systems.

The second priority attaches to ADP efficiency. We use information flow and data architectures to reduce overlapping systems and databases and to promote smooth interface of systems. We hold functional sponsors responsible for coherent information systems structure within their functional area. We are placing special emphasis on improvements in career management of information systems and computer personnel, both civilian and military. We have assigned an aggressive Senior Executive Service civilian to manage the Naval Data Automation Command.

Finally, all our actions must place full weight on computer security considerations. We have long recognized the criticality of protecting access to computer data and computer processing power. Congress has reinforced our recognition of this factor through the Computer Security Act of 1987. We view computer security as an integral part of systems development and IR management at all stages.

THE IBM PREFERENCE ISSUE

Question. Six companies recently wrote the Secretary of Defense to complain about unfair procurement practices by the Navy which seem to show an undue preference for IBM equipment in its computer acquisitions. What is the problem here?

Answer. There is fierce competition within the IBM 370 architecture compatible equipment. These companies perceive that Navy technical specifications favor IBM.

Question. Why has the General Services Administration revoked Navy "delegation of procurement authority" for certain ADP systems?

Answer. The General Services Administration (GSA) delegated $2.5 million of competitive procurement authority to Government Agencies. Within the Department of the Navy, based on favorable GSA reviews, the Marine Corps and the Naval Facilities Engineering Command received additional procurement authority up to $15 million and $10 million respectively. This is called a blanket delegation of procurement authority. Because of the allegations of the six companies, the Chairman of the House Government Operations Committee requested that the Department of the Navy's blanket delegations be revoked. There is no finding of Navy wrongdoing at this point, only the accusations by the six companies. Neither Marine Corps, nor Naval Facilities Engineering Command procurements were mentioned in the specific complaints of the six companies. The General Accounting Office is investigating. Navy is cooperating.

Question. Who in the Navy is the "competition advocate" for your ADP acquisitions:

Answer. The Navy Competition Advocate General is Rear Admiral W.H. Hauenstein. The Competition Advocate for those ADP systems acquisitions exceeding $10 million for the larger Navy commands and $1 million for the smaller Navy commmands is Mr. Dave Andross, the General Counsel assigned to the Naval Data Automation Command. Each command has a Competition Advocate for those ADP system acquisitions falling within that particular command's approval authority.

Question. Can you provide statistics on the amount of IBM computer equipment purchases during the last few years for non-tactical uses (such as office automation and routine personnel/finance/accounting/logistics ADP systems) compared to other brands? Does your data show a bias?

Answer. As previously stated, the Navy does not have accurate official statistics on computer equipment purchased. Unofficial statistics show that architectures other than the 370 architecture account for the majority of the total inventory. Within the 370 architecture (which is the concern voiced by the six companies), IBM has the majority of the large and midrange mainframes.

Office automation systems have not been addressed because they are not within the 370 architecture, nor do they fall within the same dollar value of the 370 architecture systems. It should be noted, however, that the Navy does have a sizeable investment in Zenith microcomputers for office automation purposes; these machines are IBM compatible.

Question. Do you know the results of the DoD/IG investigation into this allegation?

Answer. The DOD/IG terminated their investigation on February 24, 1989. The reason given for the termination is that Public Law 95-452 requires that the DOD/IG avoid duplication of effort with the General Accounting Office.

SSN-21 ATTACK SUBMARINE

Question. In 1984, the Navy testified that the SSN-21 shipbuilding program would be considered affordable as long as it consumed a percentage of the shipbuilding budget close to the historical SSN share of that account, which is 20 percent. However, the current five-year plan shows the SSN-21 consuming closer to 30 percent of available SCN funds.

What other ships are not being funded as a result of the increasing share going to attack submarines, and how does that affect overall force structure?

Answer. It is important to note that SSN-21 costs have not increased, but rather the top line of the SCN account has been reduced in the budgetary process. This in turn has resulted in SSN-21 receiving a larger share of funding compared to earlier plans. As budgetary pressures continue, we must emphasize production of our highest priority multi-mission ships, such as SSN-21, DDG-51, LHD-1, and AOE-6, so that the resulting fleet—though smaller—will have balanced, high technology performance to match the threat across the warfighting spectrum. During the naval recovery program of the 1980's, Congress wisely funded many auxiliary ships as part of the overall naval build-up. As we adapt to a more constrained budget environment, we will build fewer lower priority auxiliary ships. The successful building program of the 1980's for these lower priority ships will have to carry us through the current fiscal environment.

Question. Has the Navy relaxed its standard for affordability, and if so, why?

Answer. The submarine force has historically demonstrated affordability. The SSBN force is transitioning to an all-TRIDENT force with the cost effectiveness of that system well documented. SSN-21 development builds upon the successful maintenance concept utilized by TRIDENT SSBNs. Cost projections show that submarine force procurement and operating costs will remain essentially constant over the next 20 years. We intend to control costs at these constant levels, because if we allow cost growth, the inevitable result would be a decline in submarine force levels.

FFG-7'S VULNERABILITY TO ANTI-SHIP MISSILES

Question. A recent GAO report raises serious concerns about the FFG-7 frigate's ability to counter antiship cruise missiles currently fielded by several threat nations. The DoD's response is that "the limitations of the FFG-7 weapons system are understood. Possible improvements are under consideration by the Navy." Given that 51 FFG-7's are currently in the fleet, and keeping in mind the May 1987 U.S.S. *Stark* incident, what specifically are you doing to make the FFG-7's capable, with a high degree of confidence, of engaging Exocet type threats?

Answer. As is periodically done for all ship classes, the Navy is reviewing the adequacy of the combat systems aboard the FFG-7 Class, and the ability of the ship to defeat today's threat, including the Exocet. As reported by the GAO, the ———. However, to outpace the threat of the year 2000, over 20 options to upgrade the ASMD suite of the FFG-7 have been considered and analyzed. A review of this analysis and an assessment of the value added by each option is currently being undertaken. The review will be completed later this year.

Question. In 1987 and 1988 (after the Stark incident), the Navy conducted at sea test of the FFG-7's ability to counter Exocet missiles. These tests, according to GAO, were not all realistic. For example:

> All ships were positioned outside the missile's range; therefore, the missiles lost speed as they approached the ships because their fuel was depleted;
>
> All participants knew beforehand the bearing, range, and time of launch of the threat missiles. They were thus able to give the FFG-7 cueing data which would be highly unlikely in real combat;
>
> FFG-7's crew were rigorously trained for the test, to ensure high crew performance. Such intense and focused training would surely be infeasible during wartime. Why weren't the tests more realistic, and isn't there a danger of providing our forces a false sense of security as a result of such tests?

Answer. Tests of capabilities of typical U.S. combat systems against Exocet missiles conducted in 1987 and 1988 were as realistic as safety, and test constraints would allow ———. In 1987 the participation of U.S. ships was limited to a tracking exercise only; 1988 was a firing year. Crew and ship safety dictated the placement of ships beyond the fuel exhaustion range of the Exocets. Atlantic Fleet Weapons Test Facility live firing test requirements dictated the structured conduct of the tests. The requirement to collect detailed test data necessitated the cueing and advance knowledge of target position. Consequently, the artificialities of the 1987 and 1988 missile exercises were necessary, and have not given the Navy a false sense of security concerning the Exocet. On the contrary, they have helped us better understand the details of the threat.

Question. Despite the "cooperative" nature of these tests, the FFG-7 combat system's performance was poor. In addition, earlier tests of the Phalanx Close-In Weapons System showed that the FFG-7's last line of defense was marginally effective against simple threats, and not effective at all against more sophisticated threats. In other words, radar performance is poor and even when a detection is made and tracked, the weapons may not work. Don't these problems suggest a sense of both urgency and high priority?

Answer. The Navy shares the committee's sense of urgency and considers improvements in our anti-ship missile defense a matter of high priority. Our development of upgrade options for the FFG-7 and pursuit of more realistic testing of systems are based on the sense of priority. It is well understood that the FFG-7 combat system, designed for area air defense against aircraft, is not optimized for anti-ship missile defense. But it would be inappropriate to conclude that a FFG-7 is defenseless or that current systems are not operating properly based on live firing tests in which safety constraints prevented through testing of either CIWS or the SLQ-32. Recent tests of both CIWS and the SLQ-32 indicate that these systems perform to their design standards. As we examine upgrade options, we will continue to emphasize training and tactics development to achieve the maximum capability from installed systems.

AFFORDABILITY OF THE NAVY'S AIRCRAFT PROGRAM

Question. Mr. Secretary, in fiscal year 1987, the Department of the Navy's five year plan called for the procurement of 403 aircraft in fiscal year 1990. We now have before us your actual fiscal year 1990 request, which requests less than 200 aircraft. That's a reduction of over 200 aircraft in one year alone. It appears that affordability issues are catching up with the Navy. Would you agree?

Answer. The Department's Five Year Defense Plan is revised with each budget submission and projects the most recent analysis of balanced requirements based on risk assessments and fiscal realities. This year's budget submission reflects those fiscal realities and balanced requirements at acceptable levels of risk.

Question. When was the last time the Navy budgeted less than 200 aircraft?

Answer. As a result of the FY 1989 ABS, the Navy requested 192 aircraft and was authorized 207 aircraft. In FY 1981, the Navy budgeted for 104 total aircraft after receiving 123 in FY 1980, 131 in FY 1979, and 181 in FY 1978. The Navy actually procured 235 aircraft in FY 1981.

Question. Your two new aircraft programs, the ATA and the V-22, account for nearly 35 percent of your combat aircraft budget and procure less than 20 aircraft. How long do you believe you can continue down this production program and still have sufficient aircraft to fully meet your requirements?

Answer. The ATA and V-22 aircraft account for 31.6 percent of the total combat aircraft budget while only accounting for 11.0 percent of the total combat aircraft procurement in FY 1990. This hgh cost is representative of first year procurement of new aircraft. The per unit cost of these aircraft over the next three years is forecast to fall 50 percent to 60 percent. These reductions are due to a ramp up to economical production rates and the payoff of start-up cost. The rates of production proposed in the FYDP will provide sufficient aircraft to meet Department of Navy requirements.

Question. Won't this problem get worse next year, particularly when your plans call for doubling the procurement of the Navy's newest and most expensive aircraft, the ATA?

Answer. The cost for the ATA and the V-22 listed in the budget are realistic and reflect cost savings realized at projected procurement levels. The cost for ATAs in the out years is projected to fall approximately 50 to 60 percent with increased production and learning curve advantage.

[CLERK'S NOTE.—End of questions submitted for the record.

The Fiscal Year 1989 Posture Statements of Secretary Ball, the Chief of Naval Operations, and the Commandant of the Marine Corps as referred to on page 389 follow:]

A REPORT BY

THE HONORABLE WILLIAM L. BALL III

SECRETARY OF THE NAVY

ON THE

POSTURE AND FISCAL YEARS 1990/1991 BUDGET

OF THE

UNITED STATES NAVY AND MARINE CORPS

WILLIAM L. BALL, III
Secretary of the Navy

On February 23, 1988, President Reagan announced his intention to nominate William L. Ball, III, to be Secretary of the Navy. Mr. Ball was confirmed by the Senate on March 23 and took the oath of office on March 24, becoming the 67th Secretary of the Navy.

Mr. Ball was born June 10, 1948, in Belton, South Carolina. He attended public schools in Spartanburg before enrolling at the Georgia Institute of Technology in Atlanta, Georgia, in 1965. He received a Bachelor of Science degree in Industrial Management from Georgia Tech in 1969.

Following graduation, Mr. Ball was commissioned a regular officer in the United States Navy, where he served three years aboard the guided missile destroyer USS Sellers (DDG 11), followed by three years of service at the Navy Department in Washington, D.C.

Released from active duty in 1975, Mr. Ball spent the next ten years in Washington serving on the staffs of Senator John Tower of Texas, Senator Herman Talmadge of Georgia, and the Senate Armed Services Committee.

In 1985, Mr. Ball was appointed by President Reagan and confirmed by the Senate as the Assistant Secretary of State of Legislative and Intergovernmental Affairs. In March 1986, he assumed the position of Assistant to the President for Legislative Affairs on the White House staff, where he served until his appointment as Secretary of the Navy.

Mr. Ball is married to the former Patricia Adkins of Memphis, Tennessee, and they reside with their three daughters, Sarah, Clare and Rebecca, in Washington, D.C.

A Report by
The Honorable William L. Ball III
Secretary of the Navy
on the Posture and Fiscal Years 1990-1991 Budget of the U.S. Navy and Marine Corps

Mr. Chairman, members of the Committee, I welcome this opportunity to provide an assessment of the posture of the Navy-Marine Corps team and to discuss the Navy Department budget for Fiscal Years 1990 and 1991.

The condition of the Fleet today reflects America's support for a policy of peace through strength, a course of action that has contributed to a more secure world. As events unfold, the Department of the Navy will continue to examine and balance our force posture to meet new challenges to our security and that of our friends and allies. This nation will no doubt become more mindful of the daily contributions of our Fleet and Fleet Marine Forces in supporting the National Security Strategy.

The Navy and Marine Corps are on station today, in Southwest Asia, the Western Pacific, the Caribbean, the Atlantic, and the Mediterranean. This forward strategy is critical to the U.S. objective of promoting international stability. As President Bush noted in a recent speech on board USS America (CV-66) in Norfolk, our sailors and Marines keep the peace "on the frontiers of freedom around the world." He reminded the men and women of the Armed Forces that wherever they go, they take America and all it represents with them, and they "do it with a pride and dedication that few have ever matched."

We have lived, in recent years, in a period of peace and prosperity, but the challenges to our security have only changed in shape and direction. Naval power is the cutting edge of our deterrent, the foundation of our maritime superority and the key competitive advantage within our arsenal that contains Soviet military power. This is a clear concern for the Soviets, as evidenced by the public statements of their leadership focusing on the reach, versatility, and strength of the United States Navy.

I for one am convinced that the flexibility and responsiveness of naval forces will remain essential--and indeed become even more central--to our National Security Strategy. Our Navy's deterrent is derived from the ability to present any adversary with a credible, ready, sustainable force.

Sailors and Marines understand the need for a forward fleet presence, and they have made great personal sacrifices to provide ready forces where they are needed. But the operating tempo and the impact of long deployments on our people and their families require sufficient numbers of ships to meet our responsibilities and commitments in peacetime.

Your continued support is indispensable if we are to protect the gains of the past eight years, particularly the training, material, and personnel readiness of the Navy and Marine Corps.

POSTURE STATEMENT BY THE SECRETARY OF THE NAVY

Table of Contents

Page

I. THE NAVY-MARINE CORPS TEAM AND NATIONAL DEFENSE
- The Deployed Fleet: U.S. Forward Presence I-1
- Maritime Component of U.S. National Security Strategy I-2
- Dealing with Regional Conflicts I-2
- Arms Control I-3
- U.S. Deterrent Moving to Sea I-4
- Force Structure I-4
- Naval Operations in 1988 . . . . I-5
- Summing Up I-7

II. RESOURCES
- Budget Priorities II-1

III. SAILORS AND MARINES
- Navy and Marine Corps Reserve III-1
- Women in the Sea Services III-3
- Recruiting III-3
- Navy Medicine III-4

IV. DEPARTMENT OF THE NAVY PROGRAMS
- Program Planning and Integration IV-1
- Research and Development IV-3
- Key Technologies for the Future IV-3
- Shore Facilities IV-5
- Base Realignment and Closure IV-5
- Strategic Homeporting IV-6
- Environmental Action IV-6
- Sealift IV-7

V. DEPARTMENT OF THE NAVY MANAGEMENT
- Management Initiatives and the Packard Commission . . V-1
- Competition V-2
- Acquisition Management V-3
- Total Quality Management V-4

VI. CONCLUSION

THE NAVY-MARINE CORPS TEAM AND NATIONAL DEFENSE

The Deployed Fleet: U.S. Forward Presence

The Navy and Marine Corps team supports our National interests in every region of the globe on a daily basis. Forward deployments deter war, bolster allied resolve, reduce reaction time to potential areas of conflict, and provide visible evidence of American interest, military capability, and the determination to ensure free access to international waterways and airspace.

The Fleet and Fleet Marine Forces undergird U.S. Foreign Policy around the world.

- Soviet Union and Eastern Europe: Naval presence and exercise activity contains Soviet expansion and serves to deter Soviet aggression.
- Western Europe and NATO: The Fleet and Fleet Marine Force supports the cohesion and unity of NATO. Together with our allies, our forces constitute a credible deterrent against aggression on the NATO flanks.
- Middle East and South Asia: Seapower fosters the security and prosperity of Israel and our Arab friends. Our activity in the past year has helped to curb state-sponsored terrorism and to assure the continued access of the free world to the vital resources of the region.
- East Asia and the Pacific: In the Western Pacific, the presence of the Fleet gives credence to our security agreements with Japan, South Korea, Philippines, Thailand, and Australia. Recent improvements in our deployed capabilities have kept pace with the significant growth in Soviet Naval capabilities in the Pacific.
- Africa: Port visits and exercises promote good relationships with nations which share our concern for the stability and security of the region.
- Western Hemisphere: Naval presence, exercises and our cooperation with friendly states in the region are crucial in countering the expansion of Soviet, Cuban and Nicaraguan influence. Also, last year Navy and Marine Corps aircrews flew more than 7000 hours, and Navy ships with embarked Coast Guard teams provided more than 2000 steaming days in support of national drug interdiction efforts.

The United States has defensive alliances with more than 40 countries. Our treaty obligations include NATO, the Rio Treaty with American states, and bilateral agreements with the Republic of Korea and Japan. Our leadership of alliances and coalitions turns on our capability and willingness to meet solemn commitments to allies and friends. Seapower provides for the President a broad range of options which clearly lend credibility and true flexibility to NATO's strategy of "flexible response."

The Maritime Component of U.S. National Security Strategy

Our Strategy derives from the principles of deterrence, forward defense, and allied solidarity. It calls for the early and flexible positioning of maritime power to deter war, and if required, to prevail wherever deterrence may fail. It is fundamentally a competitive strategy, which would take advantage of our strengths against the weaknesses of our potential adversaries. This Maritime Strategy is a doctrine which is shaped by changes in threat, force levels and technology. It is relevant to the spectrum of contingencies, from peacetime presence and regional conflict to global war.

In the unlikely event of global war, the success of allied efforts will depend directly on our ability to control vital ocean areas, including the North Atlantic and Norwegian Sea, the Mediterranean, and the Pacific and Indian Oceans. In addition, current sealift embodied in U.S. and Allied merchant fleets will be strained to sustain these forces. Our reliance on overseas sources of strategic materials and our need to supply friendly forces will also increase demands on the merchant fleet.

For certain, the future will continue to highlight American dependence on the sea lines of communications and access to key ocean areas adjacent to the Eurasian continent. Continuing reductions in our access to overseas bases will increase dependence on our sea-based forces. The inherent flexibility and staying power resident in the Fleet and its amphibious forces will remain major components of our strategic posture.

Dealing with Regional Conflicts

We have seen in the recent past how easily regional instability can grow into conflicts with serious international ramifications. Forward deployed forces, with their embarked Marines, act to deter the spread of hostilities and, when necessary, can move quickly to support U.S. interests or isolate aggressors.

The sophisticated and ready forces on which our maritime superiority turns are also critical to the credibility of our peacetime presence and to the deterrence of lower-order conflicts. With the proliferation of sophisticated weapons in the Third World coupled with the high technology available in the international arms market, the capabilities we need to deal with Soviet forces are in many cases little different from those we would need in Third World contingencies.

Another historic development affecting our capabilities to deal with these contingencies is the erosion of our overseas base network. The total number of nations and dependencies in which the United States maintains base sites has dropped from nearly 100 in 1947 to 38 today. Future negotiations may reduce our access even further, and our recent Persian Gulf experience shows how sensitive nations can be to foreign military presence, and how military options are likely to be constrained to forces independent of bases ashore. These developments should cause us to reexamine the priority assigned to forces which can operate independent of base access and overflight rights.

Arms Control

American seapower will remain a key advantage in the military balance with the Soviet Union. The proof of our competitive edge can be seen in the details of Secretary Gorbachev's proposals to reduce our advantage at sea through negotiations. In fact, the Soviets are active on a number of fronts to reduce this advantage.

- The Soviets propose to restrict U.S. naval activity, in the Baltic, Norwegian and Greenland Seas and complicate the delivery of essential reinforcement to our NATO allies in a crisis.
- The Soviet offer to exchange facilities in Cam Ranh Bay for U.S. bases in the Philippines is aimed at eroding our ability to defend Pacific allies and strategic lines of communications through the Indian and Pacific Oceans.
- The timeworn proposal for withdrawal of U.S. and Soviet ships from the Mediterranean would jeopardize our ability to reinforce NATO's Southern Flank, and Israel, and greatly complicate access to the resources of the Middle East.

In short the Soviets recognize that many of our vital interests lie on the mainland of the Eurasian continent where they enjoy the advantage of relatively secure and interior lines of communications. Absent free access to vital maritime areas adjacent to the Eurasian land mass, we concede an enormous strategic advantage to the Soviets. Our approach to conventional arms control must bolster the security of our allies. Proposals which seek to limit communications with our allies are at odds with our aim to promote cohesion and strength within our alliances.

U.S. Deterrent Moving to Sea

The march of technology and a changing world environment highlight the value of sea-based deterrent forces. The accuracy and effectiveness of modern weapons permit naval forces to carry significant American combat power and to project and concentrate that power when and where it may be needed. New submarine launched ballistic missiles, cruise missiles, over-the-horizon amphibious assault capability and carrier- based aircraft will enhance by a noteworthy margin the deterrent power of naval forces into the future.

The U.S. ballistic missile submarines (SSBNs) at sea are the most survivable and cost-effective leg of the strategic triad. The continued modernization of a secure retaliatory force with reliable communications connectivity comparable to land-based systems, constitutes a vital leg of the strategic triad. Modernization of the SSBN force with new Trident submarines and D-5 missiles is underway, on time and on budget.

Submarine-based missile systems offer another potential benefit in wartime as a means for augmenting or reconstituting space-based systems. Moreover, sea-borne systems, with their inherent mobility and freedom from base or overflight restrictions, hold great promise as cost-effective, flexible, and survivable platforms to support our strategic defenses and provide means to counter enemy space systems.

Force Structure

Our maritime strategy, our global commitments as the leader of the free world, and our high standards for maintaining fleet readiness while giving our sailors some time at home with their families...these are the factors that have validated our Nation's requirement for a 600-ship Navy. The President's recent direction to undertake a broad review of national strategy and objectives will include factors affecting all aspects of U.S. force structure, including our requirements for all types of naval forces -- surface, sub-surface, air, and ground -- that we maintain today.

At the present time, our power projection forces--the Carrier Battle Groups and the Amphibious Ready Groups with embarked Marines--embody a wide range of capabilities relevant to a variety of contingencies including limited war, global conflict and, on a day-to-day basis, presence. These forces are not dependent on host nation acquiescence or permission. They confer on the United States unique capabilities and a degree of flexibility critical to the deterrence of aggression in the future. The Fleet Marine Forces are America's force in readiness. They are the essence of our rapid deployment capability--mobile, flexible, and uniquely responsive to National tasking.

The combat potential of our general purpose naval power is centered around the goal of 15 carrier battle groups, four battleship battle groups, 100 modern attack submarines, the amphibious lift for the assault elements of one and one half Marine Expeditionary Forces and adequate logistics support and sealift. This is the mix of naval forces required to confront challenges in this still-troubled world while keeping peacetime operations within sustainable limits. Simply put, we must provide sufficient time in homeport and the necessary resources to maintain our ships and airplanes, and to keep operating tempo at levels which do not drive skilled personnel out of the Navy due to excessive family separation.

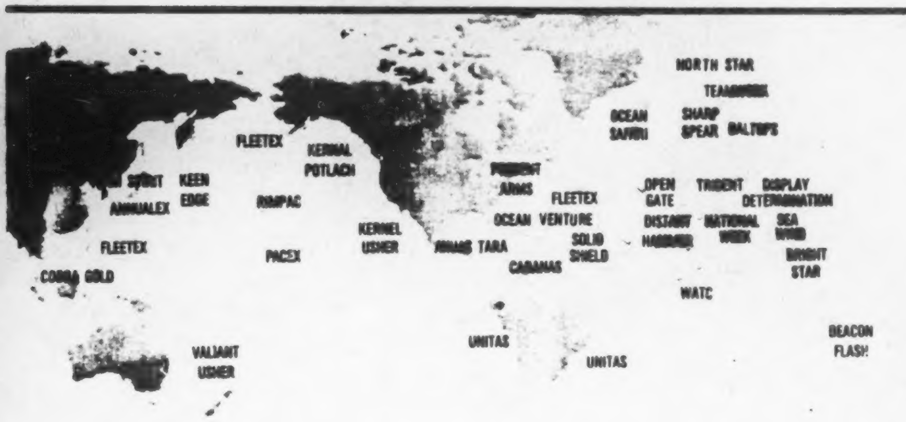
Naval Operations in 1988

The success of our recent operations in the Persian Gulf was made possible by the resurgence of our naval strength during the 1980s. Our sailors and Marines, with critical support from the Army and Air Force, were able to meet the challenge of defending freedom of navigation in the Gulf because they were motivated and because they were operating ships, aircraft, and combat systems maintained at unprecedented levels of readiness. There is little argument today that the efforts of our naval forces in the Gulf permitted our shipping and that of the free world to transit safely, thereby ensuring unimpeded access to the commerce of this vital region. The contribution of our forces to the termination of the Iran-Iraq war has been recognized throughout the free world.

Our surface combatants safely escorted more than 280 Earnest Will ship transits in 19 months. Our minesweepers located and destroyed more than 60 mines, and a variety of forces turned back numerous small boat assaults on shipping. Most importantly, the sobering presence of successive Carrier Battle Groups in the North Arabian Sea assuredly deterred any significant escalation of attacks on U.S. and friendly forces.

Beyond the Middle East, the Navy and Marine Corps have been active around the world maintaining the levels of training and readiness indispensable to a credible deterrent. Our ballistic missile submarines completed 103 deterrent patrols in 1988. Ships of both Fleets engaged in major exercises which reaffirmed treaty commitments and developed joint and combined arms combat tactics in each major geographic area. Our major forward exercises in the North Atlantic and Norwegian Sea included NATO's Teamwork, Ocean Venture, Northern Wedding; in the Mediterranean, Display Determination, and National Week; in North Africa and the Middle East, African Eagle and Bright Star; and in the Pacific, Cobra Gold, Team Spirit, and RIMPAC. Finally we concluded Tall Pine, Cabanas, and UNITAS with friendly forces in this hemisphere.

MARITIME FORCES
JOINT AND COMBINED EXERCISES


NORTH STAR
TEAMWORK
OCEAN SAFARI
SHARP SPEAR
BALTOPS
FLEETEX
KERNAL POTLACH
SPIRIT
KEEN EDGE
ANNUALEX
RIMPAC
ARMS
FLEETEX
OPEN GATE
TRIDENT
DISPLAY DETERMINATION
OCEAN VENTURE
DISTANT HAMMER
NATIONAL WEEK
SEA WIND
KERNEL USHER
TARA
SOLID SHIELD
FLEETEX
PACEX
CABANAS
BRIGHT STAR
COBRA GOLD
WATC
UNITAS
VALIANT USHER
UNITAS
BEACON FLASH

Summing Up

Among the most impressive displays of Allied capability and solidarity was exercise Teamwork 88 which I was privileged to observe last fall in the Norwegian Sea. This NATO reinforcement exercise featured participation by naval and amphibious assault forces of seven NATO countries. Almost 33,000 U.S. personnel and much of the U.S. Second Fleet participated. One of the participating Carrier Battle Groups, the USS Forrestal (CV-59) battle group, joined this exercise following a deployment in the North Arabian Sea and the Mediterranean. During this deployment, USS Forrestal (CV-59) attained the highest readiness ratings ever for a deployed carrier. This one example is a testament to the readiness levels I discussed earlier.

RESOURCES

The President's budget request for FY 1990-91 represents less than five and one-half percent of our GNP. The Navy Department's share of the defense budget represents a well-balanced program to deliver the greatest combat effectiveness possible with the dollars allocated. The understandable decline in resources available for defense has challenged us to tighten our force and make hard decisions on every dollar spent for readiness. I believe that we have met the challenge and have managed our smaller share of these resources without reducing our ability to meet national commitments. This has been a difficult process, and we are now at the limit of what can be done without jeopardizing our ability to meet commitments or breaking faith with our people.

The revisions made necessary by the overall defense budget cuts of the last four fiscal years have had cumulative effects. First, there is increased risk which attends the curtailment of some promising development and procurement programs in order to fund our more urgent operating needs. Second, efficiencies are lost when we introduce change and instability in procurement programs which increase business costs. Our inability to fully fund necessary programs in in FY 1990-91 will predictably make future modernization to our force structure even more expensive.

Budget Priorities

In real terms, Navy and Marine Corps funding remains below that of any fiscal year since 1984. We have trimmed every possible account in order to support National commitments while continuing such high priority programs as the V-22 OSPREY, the A-12, DDG-51, Trident D-5, and the SSN-21. The budget submitted for FY 1990-91 reflects the clear priorities established in guidance from the President and Secretary of Defense. We have supported and funded personnel and material readiness, and endeavored to protect force structure gains of the past years in an overall balanced program.

The Department's aim is to continue maximizing the deterrent and combat capability of our forces for the future through prudent investment and careful management. We must continue to ensure that there will be sufficient tools for our sailors and Marines to fight. We will need help from the Congress to buy ships, aircraft, and weapon systems which are affordable in the numbers necessary. Our emphasis has been on capability at an acceptable cost. The capital investment made in the Fleet has been repaid throughout long service lives of our ships and equipment, some much longer than we desire, and in the purchase of new equipment which complements old. The Navy and Marine Corps have been manned at levels consistent with a constrained budget. They have been equipped and supplied to meet projected threats. Clearly, if we are to adhere to the planning objectives and management concepts embodied in the budget, we will need the stable funding levels being requested this year and the increases planned for the future.

The FY 1990-91 revised budget represents the correct balance between competing requirements including force mix, readiness, sustainability and investment in research and development. This carefully structured budget will support operations at peacetime norms and current levels of readiness. The budget will impose certain delays on the pace of modernization and it will defer attainment of long-standing force goals in some areas.

SAILORS AND MARINES

The most striking accomplishment of the past eight years is the unsurpassed level of ability and dedication which characterizes our sailors and Marines. They are smarter, better trained, and better led than those of any potential adversary. With renewed public support, they have achieved the highest levels of personnel and equipment readiness in the Navy's 213 year history. Morale is good and our sailors and Marines feel a genuine sense of accomplishment.

Navy and Marine Corps people are a reflection of the youthful strength of this country. They willingly accept the challenge of long hours on duty, the intellectual demands of rapidly changing technology, and the long family separations that come with underway training and deployments around the globe. These volunteer professionals accept today's challenges with the faith that we will continue to support them and their families. Our sailors and Marines are very proud to serve their country and to wear the uniform. They willingly sacrifice their own freedoms and serve honorably in the expectation that their families will enjoy a quality of life comparable to their civilian counterparts.

Our sailors and Marines are often on duty far from family and friends and they need the confidence that their families are cared for at home. Recent pay increases and housing allowances have helped to maintain a suitable quality of life for our people and their families, but by most estimates pay remains 11 percent below that of the civilian sector. Providing our men and women compensation and benefits is fundamental to personnel readiness. That is why the pay raises reflected in this budget are absolutely necessary. It is also the reason that we are determined to arrest any further erosion in the benefits provided to our Navy and Marine families.

Navy and Marine Corps Reserve

The Naval Selected Reserve has grown by more than 50 percent in the past seven years. In keeping with Congressional direction, the responsibilities and missions of the Naval Reserve are integral to the Navy's Total Force. Several critical missions are exclusively, or predominantly, entrusted to the Naval Reserve. These include our light attack helicopter squadrons, helicopter strike rescue and special warfare support, mobile inshore/undersea warfare and, within the Continental U.S., heavy airlift and composite squadrons. Additionally, the Naval Reserve is now responsible for more than 80 percent of our Control of Shipping organization, cargo-handling battalions, military sealift personnel, and mine warfare ships. Upon mobilization, the Naval Reserve would provide more than 50 percent of our mobile construction battalions, fleet hospitals and special boat forces. Finally, the Naval Reserve provides almost 50 percent of naval intelligence personnel and 35 percent of the maritime air patrol capabilities we would need in wartime.

As a matter of routine, Naval Reservists train and operate with their mobilization commands in the Fleet. Their professionalism and commitment were very much evident in the Persian Gulf where full-time Reserve support personnel (TARs) and voluntarily recalled drilling Reservists worked side by side with their regular Navy counterparts.

Marine Corps planning, programming and doctrine integrate a fully trained and capable Reserve component into the active force for global war and regional contingencies. Upon mobilization, this Reserve component provides up to 33 percent of the Marine Corps' wartime manpower requirements, 40 percent of Marine tank battalions, 33 percent of the heavy artillery, 28 percent of the light attack aircraft, and 25 percent of the anti-aircraft missile capability.

Marine Corps Reserve improvements in combat capability over the past six years include equipping Reserve artillery battalions with the M-198 Howitzer in FY 1988 and FY 1989, increased deliveries of the TOW missile system in FY 1988, and final activation of a light armored infantry battalion in FY 1988. Marine Corps Reserve aviation upgrades include the activation of an additional AH-1J Cobra attack helicopter squadron and a new KC-130T inflight refueling squadron in FY 1988. In 1989, the Marine Corps Reserve will begin a transition from the F-4 to the F/A-18, an advanced aircraft with better commonality and full interoperability with the active wings. Additionally, three bulk fuel companies and two bridge platoons will be activated in FY 1989, in support of active component combat improvements.

In sum, we have met Congressional direction for the modernization and integration of Reserves into a genuine and ready Total Force. Our Reserves will be ready for selective call-ups in the event we find it necessary to supplement our active forces in real world missions, whether they be large contingencies or special situations designed to test our reserve capabilities and mobilization procedures.

Women in the Sea Services

The contribution of our uniformed women to Fleet and Marine Corps readiness is greater than ever, and it is expanding into almost every area of activity permitted by current law. Presently, 9.2 percent of the Navy and Marine Corps enlisted personnel are women, and our FY 1991 goal is 9.6 percent. Women constitute 10 percent of the officer inventory, and our FY 1991 goal is 10.6 percent. A variety of billets historically closed to females are being opened as career progression and opportunities expand for women in the naval service. The Navy has now opened to women 84 of 102 enlisted ratings and all the officer communities except for Submarine and Special Warfare. A refinement of the Defense Department's interpretation of the combat exclusion laws and modified regulations have facilitated the assignment of more women to sea-going billets, and permitted the assignment of women Marines to the Marine Security Guard detachments at embassies, and to the Marine Security Force aboard bases and ships. These measures have significantly improved career development and advancement opportunities for women by opening an additional 9,300 billets.

Women now serve at sea in 5,323 enlisted and 258 officer billets aboard submarine and destroyer tenders, repair ships, a training carrier, oilers, Military Sealift Command Ships, and more recently Combat Logistic Force Ships. In naval aviation, 9,481 enlisted and 329 officers serve in maritime patrol, fleet composite, tactical electronic warfare, helicopter combat support and training squadrons. Women have recently been selected to command an aviation squadron and a combat logistics or support ship. Overall, career opportunities for women have dramatically improved. Active measures such as selective recruiting and pre-service counselling have also improved the balance between men and women in sea intensive and shore intensive ratings requiring technical training.

Recruiting

A strong national economy, a forecast decline in the eligible youth pool in the 1990s, and increased competition for these young workers present a major challenge for Navy and Marine Corps recruiters. Recent survey results indicate that the Navy/Marine Corps awareness level among young people is well below that of the other services. While the Navy met recruiting goals for the ninth straight year, we will have some difficulties in attracting sufficient numbers of new enlistees. Competition from the civilian sector has increased and budgetary constraints affecting our advertising and educational efforts will impact on our ability to attact the best and brightest to serve in the naval service. Although over 90 percent of Navy recruits in FY 1988 were high school graduates, the number of recruits in the lowest mental group (IV) has also increased. The Marine Corps, however, continues to meet quantity and quality recruiting goals, with high school graduates accounting for over 95 percent of its non-prior service accessions. If we are to attract quality recruits for the future, we must commit the necessary resources to recruiting in view of the challenge we face in competing with civilian industry and our sister services.

Navy Medicine

Navy medicine is structured and manned to provide medical care in wartime to active duty military personnel, as well as to deliver extended health care to active duty personnel, their dependents, military retirees and their dependents, and survivors in peacetime. For the past several years, disturbing trends have emerged as patient workload shifted from uniformed health care facilities to the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS).

This shift in workload limited the number and variety of cases referred to teaching facilities, effectively reducing the experience of military physicians under instruction. Concomitant problems with faculty retention, rotation, and manning have also put our Graduate Medical Education Programs at risk. The increasing price of CHAMPUS led to more out-of-pocket expense for Navy and Marine Corps families and the Navy's overall costs increased dramatically as CHAMPUS costs rose. More importantly, the erosion of our in-house care to Navy and Marine families affected morale and retention within the Navy Medical Service as well as the rest of the naval service.

In 1988, I established a Medical Blue Ribbon Panel, chaired by the Vice Chief of Naval Operations, to recommend actions which would improve access to Navy hospitals and clinics for all beneficiaries, reduce the dependency on CHAMPUS, and revitalize Graduate Medical Education. The thrust of the panel's recommendations is to increase the use of our own facilities, thereby improving access, promoting our education programs and reducing our dependency on CHAMPUS. Congress has assisted greatly by supporting our efforts with enabling legislation and funding. The results of this responsive Congressional support are already visible.

Ten NAVCARE clinics are now fully operational, and several sites have opened additional clinics. These clinics work in combination with our personal services, emergency room and ambulatory care contracts to bring the work back into the Navy medical community. We are also taking full advantage of the CHAMPUS "partnership" program which permits CHAMPUS providers to see our patients in our Navy hospitals and clinics. From the patients' point of view, they should now receive the required care in the preferred Navy treatment facilities. These arrangements should help to reduce our reliance on CHAMPUS, and thereby increase the productivity of our own resources.

The budget now under consideration includes funding for some of our critical medical initiatives. Several legislative proposals to improve the medical practice environment for our patients and our staff will soon be presented for Congressional review. All of our attention is focused toward one goal: to provide first rate and affordable health care for all Navy beneficiaries.

DEPARTMENT OF THE NAVY PROGRAMS

Today's Navy and Marine Corps are vastly improved over the those of the recent past. A few examples of systems now in the Fleet or close at hand will serve to highlight our progress:

- Anti-air warfare: Delivery of CVN 69/70/71, addition of Aegis cruisers and destroyers, New Threat Upgrades to our major AAW surface combatants, Vertical Launch missiles, and Close-In Weapon Systems installation aboard many of our ships.
- Antisubmarine warfare: SSN 688 Improvements, SSN 21, P-3C patrol aircraft Updates II and III, Lamps III helicopters, and SQQ-89 and BQQ-5C sonar systems.
- Antisurface warfare: Procurement of Harpoon, Tomahawk, commissioning of the last battleships, F/A-18 strike aircraft, and HARM antiradiation missiles.
- Electronic warfare: Activation of 11th EA-6B Squadron, the EA-6B EW upgrade (ICAP II), Outboard shipboard signals acquisition system.
- Mine warfare: Delivered MCM-1 class and MHC-51 class mine countermeasure ships.
- Amphibious warfare: Delivery of LSD-41, LHD-1, and LCAC amphibious assault ships and craft, AV-8B close air support aircraft, C/MH-53 and AH-1W helicopters, and development of a new V-22 tilt-rotor aircraft.
- Ground combat: Infantry weapons and support equipment have been greatly modernized.
- Strategic Forces: Introduction of the new D-5 missile system aboard Trident SSBNs.

These programs represent major improvements over the weapons in service only 10 years ago.

Program Planning and Integration

The Department of the Navy's planning action for the future is based on comprehensive working papers, or master plans, which support our requirements and programs with in-depth analyses of requirements and solutions. A few examples illustrate the attention we give to the long-range implications of our procurement decisions:

- Navy and Marine Corps Aircraft Procurement Plan. The aviation portion of the FY 1990-91 budget continues and expands initiatives to ensure naval aviation's role in projection of U.S. maritime power. Commitments by the Navy and Air Force in cooperative development of the A-12 Advanced Tactical Aircraft (ATA) and the Advanced Tactical Fighter (ATF) will provide the benefits of common aircraft design and procurement.

- ASW Master Plan. The Maritime Strategy defines the requirement for superiority over a Soviet submarine force that grows quieter and more capable every day. The updated ASW Master Plan describes the roles of each ASW platform--aircraft, submarine, surface ship, and surveillance system. In addition, it outlines plans for developing technologies such as full spectrum acoustic processing, low frequency active sonar, and non-acoustic ASW as complements to existing systems.

- Surface Combatant Force Requirements (SCFRs) Plan. The problem of block obsolescence of our surface combatants can be managed by building ships that will retain their usefulness and are able to contribute to the Fleet's combat power as they age. Under this plan, we will build a warship that can handle the future threat, and to procure this Battle Force Combatant at a sustained and efficient rate, avoiding expensive new starts or major redesign efforts.

- Marine Corps Long Range Plan and Marine Air-Ground Task Force (MAGTF) Master Plan. The Marine Corps Long Range Plan, now in the final stages of development, will define goals to guide the development of doctrine, training, force structure, and materiel. The MAGTF Master Plan outlines the operational foundation for organizing, manning, equipping, training, and developing doctrine and techniques for MAGTFs of the Fleet Marine Forces.

- Joint Navy/Air Force Air-to-Air Missile Master Plan. The Navy and Air Force, following Congressional direction to avoid duplication of effort, have agreed to an integrated air-to-air missile plan to guide all air-to-air missile development and procurement, product improvements and related technologies. Affordable plans and timely execution by the designated lead Service are ensured by the Joint Air-to-Air Missile Office.

Research and Development

Our research and development efforts focus on technologies with the greatest potential for improving combat capability in each warfare area. Two studies completed in the past year examined the current status and forecasts for such key technologies. A long-term effort, *Navy-21: Implications of Advancing Technology for Operations in the Twenty-First Century* by the Naval Studies Board of the National Research Council, outlined the technological progress which will be required over a time period extending well into the next century, beyond the expected lives of all existing ships, aircraft, and submarines. The *Quo Vadis* study by the Director of Navy Research and Development Requirements, Test and Evaluation, reviewed our current research and development program in the light of the long and mid-term trends, to ensure that our efforts are focused on the warfare areas with the greatest leverage in future combat scenarios.

Navy-21 evaluated the implications of advancing technology for naval warfare from the present to the year 2030. The study looked at effects of advanced technology on Maritime Strategy, and potential threat responses. The study identified several technologies that are likely to drive combat potential over the next several decades. In particular, spectacular advances in surveillance, communication, and information technology will make it possible to deploy systems which will greatly improve our ability to locate and identify targets, transmit the information to commanders and guide weapons to the targets over very long distances.

Key Technologies for the Future

Future missions will utilize every type of modern electronic device--sensors for surveillance, target location, precise navigation, and weapons guidance; advanced computers for data processing and fusion, computing power, and communications. Advances in material as well as electronics are providing tactical opportunities in stealth and counterstealth weapons systems developments undreamed of only a few years ago. Automation, robotics, and advanced guidance and control systems for unmanned underwater and air vehicles will be key factors in the 21st Century. We have identified investment needs *today* to achieve advances in weapons propulsion and lethality. We are striving to bring new forms of marine electric propulsion, power generators and transmission, hull forms, integrated weapons systems, and new ship designs out of the labs and into the Fleet. Most important are the advances in software used in communications architecture and information processing systems. Other advances include improved materials for superconductors, low-loss fiber-optic cables, composite materials for structures, and gallium arsenide for advanced electronic circuits.

Advances in missiles and unmanned craft, especially those bearing on guidance, performance, stealth, and cost reduction will foster longer-range and more effective airborne surveillance and targeting systems for the Fleet. Missile systems will extend the reach of platforms that are likely to remain longer with our active Fleet, highlighting the importance of "planned" product improvement for both forces and systems. Unmanned aerial and undersea vehicles will bring a new dimension in combat capability.

To streamline the development of technologies into operational systems, we are increasing the attention we devote to the early phases of advanced development. For example, we established the Advanced Technology Demonstration (ATD) program in FY 1987 to uncover potential problems prior to our undertaking large investments. It is now the Navy's primary means to transition high-payoff technologies into weapon systems. Some Navy advanced technology demonstration projects include:

°Ongoing

- Advanced Fiber Optics Technologies
- Fiber Optic Tethered Air Weapon
- Undersea Weapons Technology
- All-Optical Towed Array
- Unified Network Technology
- Airborne Transient Processor
- Fiber Optic Tethered Torpedo
- Surveillance Infrared Search and Track
- Magnetic and Acoustic Detection of Mines
- Quiet Weapon Launch
- Adaptive Monopulse Countermeasures
- Advanced Assault Amphibian Demonstrators

°In Planning

- Intelligent Welding System
- Air/Surface Data Fusion
- Synthetic Red Blood Cells
- Air Weapon Neural Computer
- Undersea Weapons Guidance and Control
- High Power Microwave Technology

Shore Facilities

A well-manned shore establishment in good repair is also vital for the support and readiness of our Fleet operating forces. Our FY 1990-91 Military Construction (MILCON) budget will repair the most serious deficiencies in our physical plant and construct those facilities which are necessary to support our missions. Construction of new family housing in high cost areas and at our remote homeports remain the highest Navy priority. The Marine Corps continues to revitalize its training and maintenance facilities, both active and reserve, while also devoting attention to quality of life improvements. We have not relied solely on MILCON funding to improve the performance of the shore establishment. New public/private ventures, improved facility maintenance operations, and innovative contracts will be used to get more efficiencies in supporting the Fleet. With our reduced budget request, we need to emphasize creative approaches to repair and construct the facilities necessary to sustain Fleet readiness and maintain the quality of life which is imperative for our people.

Base Realignment and Closure

Navy and Marine Corps base consolidation efforts since the early 70s reduced the shore establishment below the minimum required for maintenance and training of our current Fleet. The rebuilding efforts in the 1980s strained the capacity of our facilities ashore, and required the construction of some additional infrastructure. Last May, Secretary of Defense Carlucci chartered the Commission on Base Realignment and Closure. With supporting legislation from Congress, the Commission set criteria for identifying bases in excess of our defense needs, or which may be consolidated to produce substantial savings while carrying out essential functions. The Department of the Navy cooperated with the work of the Commission and presented complete data on all its facilities and measures of their utilization.

In December 1988, the Commission fulfilled its charter by proposing a list of base realignments and closures. In January 1989, the Secretary of Defense approved actions which, subject to final Congressional approval, would affect the following Navy facilities:

- The Naval Station New York (Brooklyn) will be closed. Its activities will be moved to Naval Station Staten Island to support the seven ships of the USS Iowa (BB-61) battlegroup when it arrives in the area in 1990.

- The Naval Hospital in Philadelphia will be closed.

- The Naval Reserve Center (Coconut Grove), Miami, Florida will be closed. New construction will make the Coconut Grove Center redundant.
- The Naval Station Puget Sound (Sand Point), Washington will be partially closed. Fleet support units will be based at the planned naval station in Everett, Washington.
- The expansion of Naval Station San Francisco (Hunters Point), California will be cancelled.
- The construction of new homeports at Galveston, Texas and Lake Charles, Louisiana will be cancelled. The planned naval station in Ingleside, Texas will be expanded to serve USS Wisconsin (BB 64) battlegroup ships originally scheduled for Galveston and Lake Charles.

We are developing plans now to implement these realignments and closures, mindful of our responsibility to the communities affected by these actions. Moreover, we are committed to minimizing any adverse impact on our service members, civilian employees, and their families as we make the necessary adjustments.

Strategic Homeporting

By 1968, the build-up during the Vietnam war found the Navy with 976 ships dispersed among 65 home ports, using portions of the aging World War II base structure still in place. As the Fleet decreased in size to its low of 479 in the late 1970s, the number of home ports shrank to 34. Today, the Fleet stands at 565 ships. This has made necessary the construction of a modest number of new facilities.

The logic of the Strategic Homeporting Plan applies today even though the program has been modified as a result of the Commission on Base Realignment and Closure. Strategic homeporting will make our force more survivable and will disperse our industrial shipbuilding and repair base.

Our Navy simply must have the pier space and the industrial support of more than one or two major ports on each coast. With contributions of local funding, the Strategic Homeporting Program is a sound concept that is now taking shape.

Environmental Action

The Department of the Navy is committed to practical, effective measures to protect the environment. We have adopted waste disposal standards that are more stringent than those required for the maritime industry. A variety of initiatives are underway to eliminate the pollution of our oceans. We are installing oil/water separators to eliminate the discharge of oily waste from ships' bilges, controlling medical waste, and eliminating the disposal of plastic at sea.

Navy and Marine Corps installations are conforming to the Comprehensive Environmental Response, Compensation and Liability Act, and are working to identify sites and negotiating agreements for cleanups wherever wastes were improperly handled in the past. We are ensuring the highest level of attention to the management of currently generated hazardous waste under the Resource Conservation and Recovery Act. The best policy is simply to generate as little hazardous waste as possible. We have set a goal of 50 percent reduction of hazardous waste generation by the end of 1992. For example, at Keyport, Washington, we have replaced the practice of stripping chemical paint from torpedoes with a dry plastic media blast, eliminating hazardous solvents and 3,500 gallons per week of hazardous wastewater. At the Marine Corps Air Station, Cherry Point, North Carolina, better hazardous waste management has cut waste generation from 9.2 million pounds in 1983 to 1.32 million pounds in 1988.

Navy regulations in existence for 20 years prohibit discharge of trash at sea within 25 nautical miles of any U.S. or foreign coastline. Trash discharged beyond 25 nautical miles must be sunk. Oily bilge and ballast water cannot be discharged within 50 nautical miles from any shoreline. We are installing oil/water separators on all our ships to meet the latest international standards which approach zero discharge of oil at sea. Over the last 15 years, the Navy has spent over $500 million to retrofit all ships with systems for the collection, holding and transfer of shipboard-generated sewage, and over $150 million on pier sewer connections to accept ships' waste. All commissioned ships, service craft, and small boats are now equipped with wastewater systems to pump sewage ashore for proper treatment. The Navy is leading efforts to eliminate the disposal of plastics and medical wastes at sea. New procedures in the Fleet will reduce discharge of plastics by almost 70 percent. We now require all medical waste to be held aboard ship, consistent with the health and safety of the crew. It is off-loaded ashore for disposal in strict accordance with state and local regulations.

Sealift

We recognize that the continued decline of the U.S. Merchant Marine jeopardizes our ability to support a major mobilization and reinforcement effort. In the past eight years, the Navy has invested in sealift programs, including the procurement of ships and support equipment. In the final analysis, the inability of the U.S. Merchant Marine to compete in the international shipping market has caused the U.S. commercial fleet to decline more rapidly than Navy programs can recover lost sealift capability. Should the decline of the U.S. Merchant Marine not be arrested, it may be necessary to devote even more of our national resources to sealift in the future. A national program which will improve the ability of U.S.-flag and U.S.-owned ships to compete in the international trade is urgently required.

DEPARTMENT OF THE NAVY MANAGEMENT

> "I've been inside a submerged submarine while depth charges were going off all around it. I know what it's like to hear the vessel strain and shake and to pray to God that the people in charge of buying and building cared as much about the vessel as you do. I believe that the overwhelming majority of procurement officers and defense contractors do care that much. I am determined to make sure that every single one of them does."
>
> President George Bush,
> to sailors and shipyard workers,
> Norfolk, Virginia, 31 January 1989

We share the President's determination to wring the last drop of waste and mismanagement out of the way we buy our weapons. Our acquisition program is unique within the Department of Defense, in that we purchase the full range of military hardware for land forces, amphibious assault, sealift, combatant ships, aircraft, and missiles. A highly professional group of Navy and Marine Corps managers execute over three million contract actions annually, valued at over $55.6 billion. These figures, which would put the Department of the Navy at the top of the FORTUNE 500, illustrate the management challenge faced by Navy leadership.

Management Initiatives and the Packard Commission

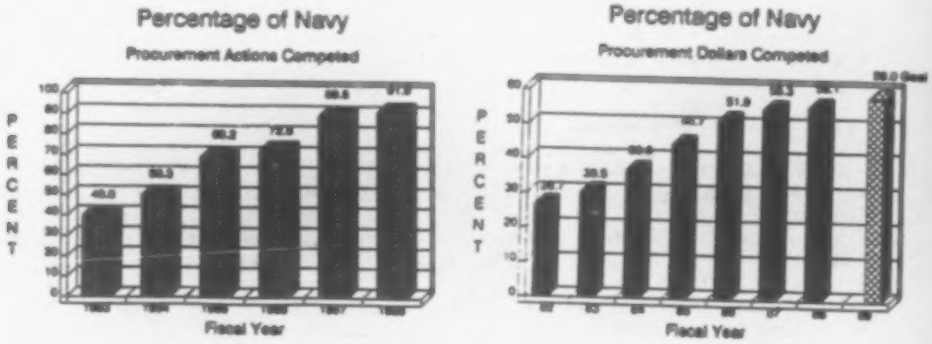
In improving program management, the Navy Department anticipated some of the key conclusions of the Packard Commission. For example, in 1985 we implemented a newly designated Material Professional program for officers, and shortened lines of communication to and from program managers. The Packard Commission pointed out that "there are certain common characteristics of successful commercial and governmental projects." These characteristics include:

- Short, unambiguous lines of communication.
- Small staffs of highly competent professionals.
- An emphasis on innovation and productivity.
- Smart buying practices.
- Stable environment of planning and funding.

The Navy, working with the Department of Defense, spearheaded the implemention of the Packard Commission's recommendations to improve the management environment. Biennial budgets have been institutionalized to create a more stable basis for planning and funding, and multi-year procurements are being used where prudent. This biennial budget requests the largest number of multi-year procurements to date. Competition has been emphasized wherever possible. The acquisition chain-of-command from the Defense and Service Acquisition Executives to each Program Manager has been shortened, simplified and made more responsive. Innovation, productivity and "smart" buying have been emphasized successfully through programs such as Total Quality Management, ACTION Plus, centers of excellence, streamlining initiatives, productivity improvement, and "Could Cost." However, much more remains to be done with respect to certain Packard Commission recommendations: simplifying and recodifying procurement statutes; improving the partnership with Congress and industry; and continuing to improve the quality of acquisition professionals through training and improved personnel management.

Competition

Fiscal Year 1988 marked the completion of over five years since the Navy competition program was put in place and over four years since the implementation of the Competition in Contracting Act (Public Law 98-369). Now, as then, the Department of Defense is finding ways to use competition effectively to obtain higher quality products with fewer dollars. With the expected constraints in the defense budget over the next few years, competition will continue to be a fundamental business strategy of the Department of the Navy to ensure the best possible value in each acquisition.



Competition Actions

Competition is now institutionalized and has been successful in reducing costs. The Navy exceeded the established competition goal of 53 percent for FY 1988 by competing 56.1 percent of its procurement dollars and 91.9 percent of the contracting actions. During FY 1989, without a nuclear carrier acquisition, the Navy will achieve 100 percent competition in its shipbuilding programs. In addition, the overall Navy FY 1989 goal has been increased to 59 percent, reflecting our confidence in further progress.

Two programs illustrate the success the Navy has enjoyed in competing acquisitions in FY 1988: the Tomahawk missile and the Trident submarine. Tomahawk continues to be a model competitive program for the Navy. Not only have prices continued to decline, but increased emphasis on quality in the program has cut the number of depot rejections in the inspection and acceptance process. Cost avoidance over the life of the program is now expected to exceed $3 billion. In the second illustration, the Trident class submarine was competed, which reflected savings of $74.1 million. The construction award was made on initial offers using the competitive forces of the marketplace rather than lengthy and resource consuming negotiations to ensure the price was fair and reasonable.

The Navy has led the way in using marketplace forces to reduce or eliminate overly restrictive regulations and unnecessary audits. The competitive marketplace has repeatedly proven itself to be the best regulator. To provide industry with earlier notice of competitive opportunities, the Navy published its first market research guide this year and is currently distributing its second edition. Moreover, increasing the opportunity for businesses to sell to the government has the healthy effect of motivating manufacturers to innovate. Contractors respond with new manufacturing processes which save time while cutting costs.

Acquisition Management

The Navy entered into fixed-price development contracts for several major systems in FY 1988. These contracts included the Advanced Tactical Aircraft (A-12), Advanced Submarine Combat Control and Acoustic System (AN/BSY-2), HARM Low Cost Seeker, Advanced Airborne Expendable Decoy (AAED), Remotely Piloted Vehicle (RPV), Missile Detector Buffer Box (MDBB), and the Combat Control System MK-2 (CCS MK-2). The success of this type of contract depends on risk reduction prior to full scale engineering development. We will continue such a course on programs where the risks are consistent with fixed-price arrangements.

We coordinate closely with industry as we formulate acquisition strategies and streamline specifications and data requirements. In Navy RPV acquisition, for example, we solicited comments from industry in formulating the acquisition strategy and defining a NATO RPV for a maritime mission. We awarded a competitive phase to conduct a comparative analysis and to consolidate mid-range RPV target requirements. Also, in the A-12 program, we decreased the number of required military standards and specifications from 2200 to 540, tailored data requirements to contractor formats, and accepted required reports and data on computer software rather than on paper.

Success in project management depends on flexibility in applying sound business strategies to specific procurements. On the Advanced Air-to-Air Missile program, for example, we changed the plan for the demonstration/validation contract from "fixed-price" to "cost-type", since the risks involved had not yet been reduced sufficiently. In the Tactical Air Operations Module program, we selected a subcontractor competition instead of a leader-follower arrangement for greater savings. The extent of the subcontracted competition was negotiated up-front and included in the prime contract award.

The Navy continues to work toward restoring the authority of Program Managers. This means making use of the Packard Commission findings by reducing bureacratic layers, streamlining, showing flexibility, and enforcing accountability. Currently, by far, the overwhelming problem for Program Managers is the production of documents and reports. The majority of major acquisition documents and reports are required by law and contain many overlapping data elements. Among 22 of the most common DoD-wide reports, 13 are directly rooted in various sections of Title 10 U. S. Code, and three more are required by the Federal Acquisition Regulations, OMB Circular, or equivalent authority. There is limited potential, therefore, for the Navy or even DOD to provide major administrative relief for our Program Managers without help from Congress.

Total Quality Management

Total Quality Management is a customer-oriented, quality-focused management practice, paralleling the actions of successful private companies. Our goal is to surpass the President's 1986 challenge to increase productivity 20 percent by 1992. We are streamlining acquisition to reduce procurement lead times and eliminate unnecessary requirements. During the past year, over 135 programs were reviewed this way, resulting in more than $3 billion in savings and cost avoidance. Examples include FY 1988 savings of $111 million for the AH-1 Night Targeting System (NTS), and estimated cost avoidances of over $1 billion for the A-12 program.

CONCLUSION

Working together, Congress and the Executive Branch have revitalized the Fleet and Fleet Marine Forces. Deficit reduction measures, while necessary for the health of our economy, must also take into account the absolute necessity to provide for America's security. As we decide how to structure our defense for the future, we should consider the flexibility and deterrent value of each purchase. We should favor those which will have an enduring capacity to respond to the widest variety of contingencies, especially those which are the likeliest. Our ability to concentrate powerful sea-based deterrents quickly in response to emergent crises, and to redeploy them just as quickly, means that naval forces will remain the primary means to undergird American foreign policy for the foreseeable future.

A trained and ready Fleet will support a maritime coalition and the proven strategy of deterrence and forward defense. We have that Fleet today, manned by volunteer professional sailors and Marines willing to make the sacrifices necessary for our national security objectives. They look to us to support their families, their training, and to provide the best equipment in the ships and aircraft which we ask them to man. The budget before you will meet our responsibilities to these young Americans. The budget reflects a plan which is balanced and reasonable. It is affordable and worthy of your support.

NOT FOR PUBLICATION UNTIL
RELEASED BY THE HOUSE
APPROPRIATIONS COMMITTEE

STATEMENT BY ADMIRAL C.A.H. TROST, U.S. NAVY

CHIEF OF NAVAL OPERATIONS

BEFORE THE HOUSE APPROPRIATIONS DEFENSE SUBCOMMITTEE

ON THE POSTURE AND FISCAL YEAR 1990 BUDGET

OF THE UNITED STATES NAVY

1 MARCH 1989

NOT FOR PUBLICATION UNTIL
RELEASED BY THE
HOUSE APPROPRIATIONS COMMITTEE

ADMIRAL CARLISLE A. H. TROST
UNITED STATES NAVY
CHIEF OF NAVAL OPERATIONS

Carlisle Albert Herman Trost became the U.S. Navy's 23rd Chief of Naval Operations on June 30, 1986.

The son of the late Elmer H. and Luella (Hoffman) Trost, he was born April 24, 1930, in Valmeyer, Illinois. He attended Washington University, St. Louis, Missouri prior to entering the U.S. Naval Academy in 1949. On June 5, 1953, he was commissioned an ensign, graduating first in his class from the Naval Academy.

Following graduation, Admiral Trost first reported to the destroyer USS Robert A. Owens (DD 827) and, in December 1954, detached to attend the Submarine School, New London, Connecticut. In June 1955, he reported to the submarine USS Sirago (SS 485) where he qualified as a submariner in July 1956. From January to June 1957, he attended the Advanced Nuclear Power course at the Submarine Base, New London, Connecticut, followed by further training at the Naval Nuclear Power Training Unit, Idaho Falls, Idaho until September 1957.

In November 1957, Admiral Trost reported to the nuclear-powered attack submarine USS Swordfish (SSN 579) and in December 1959 qualified to command submarines. From January until June 1960, he studied German at the Army Language School, Monterey, California, and was then assigned temporary duty in the Bureau of Naval Personnel, Navy Department, Washington, D.C. In September 1960, he reported to the University of Freiburg, Federal Republic of Germany, serving until January 1962 when he reported as executive officer of the nuclear-powered attack submarine USS Scorpion (SSN 589).

From May to July 1963, Admiral Trost attended the Polaris Command course at the Fleet Anti-Air Training Center, Dam Neck, Virginia. He then reported as executive officer of the Blue Crew of the nuclear-powered ballistic missile submarine USS Von Steuben (SSBN 632). In March 1965, he reported as Military Assistant to the Deputy Secretary of Defense, Washington, D.C.

In January 1968, Admiral Trost assumed command of the Blue Crew of the nuclear-powered ballistic missile submarine USS Sam Rayburn (SSBN 635). In September 1969, he was assigned as Assistant Chief of Staff for Personnel and Administration on the staff of Commander Submarine Force, U.S. Atlantic Fleet. He reported in August 1970 as Executive Assistant and Naval Aide to the Under Secretary of the Navy, and later Secretary of the Navy, John W. Warner, serving until June 1973. In March 1973, his selection to flag rank was approved by the President. In June 1973, he assumed command of Submarine Flotilla One in San Diego, California, with additional duties as Commander Submarine Force Pacific Representative, West Coast.

In December 1974, Admiral Trost reported to the Bureau of Naval Personnel as the Assistant Chief for Officer Development and Distribution. In January 1976, he was assigned to the Office of the Chief of Naval Operations as Director, Systems Analysis Division. On August 22, 1978, he was promoted to vice admiral and reported as Deputy Commander in Chief, U.S. Pacific Fleet, Pearl Harbor, Hawaii.

On February 14, 1980, Admiral Trost assumed command of the U.S. Seventh Fleet where he was awarded the Government of Japan's Order of the Rising Sun (2nd Class) and the Republic of Korea's Order of National Merit.

On September 15, 1981, Admiral Trost was assigned as Director, Navy Program Planning on the staff of the Chief of Naval Operations. On October 4, 1985, he was promoted to the rank of admiral and became Commander in Chief, U.S. Atlantic Fleet and Deputy Commander in Chief, U.S. Atlantic Command.

Admiral Trost's personal awards include the Distinguished Service Medal (2); the Legion of Merit (3); the Navy Achievement Medal; the Navy Expeditionary Medal; the Navy Occupation Service Medal (European Clasp); the National Defense Service Medal with Bronze Star; the Antarctica Service Medal; the Humanitarian Service Medal; and the Sea Service Deployment Ribbon.

He is married to the former Pauline Haley of Cottage City, Maryland. Admiral and Mrs. Trost have four children: Carl Michael, Laura Lee, Steven Glenn and Kathleen Susan.

TABLE OF CONTENTS

Page
Overview 1-14

****

FY-90 Posture Statement

The Need for Maritime Power 1

Deterrence 3
Strong Alliances 4
Forward Operations 5

Future Security Environment 6

The Soviet Threat 8

State of the Navy Today 10

Naval Operations: 1988 14

The Challenge of Tomorrow 17

Priorities for the Future 23

Conclusion 23

Appendix A: Navy Budget for FY 1990 - 91 . . 26

Readiness 29
Sustainability 31
Modernization 33
Force Structure 36

SHIP CONSTRUCTION PROGRAM 36
AIRCRAFT PROCUREMENT PLAN 41

FY 90 POSTURE STATEMENT

OVERVIEW

Before beginning my formal posture statement, I would like to call your attention to a vivid and evocative videotape we have produced to give the Members of the 101st Congress a first-hand look at our Navy operating today at sea. A copy has been provided directly to your offices, and I would encourage each of you to spend a few minutes viewing this visual presentation of the Navy's role on the front lines of national policy support and execution. I further encourage all of you to come visit the Navy at sea during this important year, to see for yourselves the matchless professionalism, total dedication, and superb performance of our Navy men and women.

Our Navy has never been more ready to support U.S. national policy throughout the world. Over the past year, our forward deployed naval forces have provided a strong deterrent and made significant contributions to successful execution of U.S. security policy in the Persian Gulf as well as in every ocean of the world. Thanks to continued Congressional support, we have built the right kind of Navy. We have the right ships and the right aircraft and are able to fight and win at sea and move personnel and equipment ashore where and when necessary. We want to continue the excellent working relationship we enjoyed with the 100th Congress and provide the balanced support necessary to meet the naval requirements of a maritime nation that is the superpower of the free world.

Our allies recognize this unique and valuable contribution. Such diverse countries as China, Korea, Japan, Italy, Turkey, Israel, the Gulf Cooperative Council States, and numerous countries of South and Central America have all commented positively on the contribution to regional stability which our forward deployed Navy provides. This enables us to be at the right place at the right time to respond to U.S. national interests. Potential aggressors, troublemakers, and supporters of international terrorism are well aware that our deployed battle groups and amphibious forces are just over the horizon and can respond on short notice.

A credible naval force should be at sea, operating, honing its proficiency, proximate to potential trouble spots, ready to respond to national tasking promptly. For example, the capture of known terrorists during the Achille Lauro incident could not have been accomplished under a surge or "home fleet" concept. That is why today our Navy is on station in the world's trouble spots. Over 100,000 men and women are underway every day, in the Western Pacific, the Indian Ocean, the Persian Gulf, the Mediterranean, the Atlantic, and the Caribbean Sea, strong and capable, a necessary and formidable bulwark in defense of our nation's ideals and interests abroad.

Deterring the Soviet Union remains a primary challenge for our forward deployed Navy. While we must listen hopefully to all Soviet proposals, we cannot permit ourselves to be lulled into complacency concerning the Soviet threat. After all, Glasnost and Perestroika are policies aimed at arresting the deteriorating Soviet economy. If these policies succeed, the military potential of the Soviet Union could eventually be even greater than today. Since 1981, the Soviets have put to sea six new classes of general purpose submarines, four new classes of surface warships, and three new types of naval aircraft. They are building a new 65,000-ton class of aircraft carrier that will bring a significant new capability to their fleet in the next few years, joining their four Kiev class carriers already fully operational at sea. We have seen little slackening in their building efforts.

I am particularly mindful of Soviet submarine capabilities, and our own anti-submarine warfare efforts remain my top warfighting priority. The new SSN-21 Seawolf attack submarines and the new Long Range Air ASW Capability Aircraft (LRAACA) are the essential next generation of ASW forces. When combined with planned improvements to our carrier-based ASW aircraft and helicopters and the integrated ASW capability on our new surface combatants, they provide us the forces necessary to meet the Soviet ASW challenge. ASW is a force structure intensive problem. There are no silver bullets or easy pat answers to ASW. Nor is there a technical breakthrough on the horizon to make ASW simple: It takes the combined efforts of all our ASW forces -- surveillance systems, attack submarines, ASW aircraft and helicopters, and surface combatants -- to defeat a large submarine threat. To succeed at ASW you have to do it the old fashioned way: work hard and combine all the forces at your disposal. This is a lesson we learned in World War II and it remains valid today.

Our powerful Carrier Battle Groups are the centerpiece of our forward deployed Navy. Aircraft carriers capable of employing the full range of combat aircraft and accompanying potent surface combatants allow us to take large numbers of tactical aircraft and other forms of significant sustainable offensive combat power to sea. I want to emphasize that it is the capability of our embarked carrier air wings, unique in the world, that makes the large deck carrier the preferred weapon system whenever our national interests are at risk. Marshal Akhromeyev, former leader of the Soviet military and currently a senior advisor to General Secretary Gorbachev commented, " . . . a special mention should be given to the aircraft carriers . . They have colossal might; each carrier is an afloat air division." He wrote this after seeing the carrier/air wing team first hand when he visited USS Theodore Roosevelt (CVN-71) with Admiral Crowe last year.

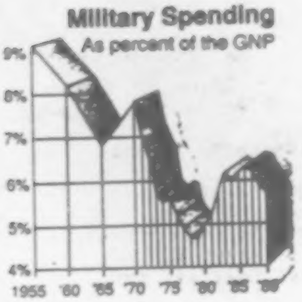
It is not surprising, given the demonstrated capability of our aircraft carriers, that every Chairman of the Joint Chiefs of Staff since World War II has validated minimum risk warfighting requirements for at least twenty Carrier Battle Groups. Today the Theater Commanders, with their warfighting responsibilities, truly value our deployed battle groups. When conflict looms on the horizon, they, as well as our national leadership, ask "where are the aircraft carriers?" Their war plans include requirements for Carrier Battle Groups and their contingency plans depend on them. To all those directly responsible for our country's defense, the stated requirement for 15 deployable Carrier Battle Groups represents only a minimum essential requirement, not an upper limit we are prepared to do without.

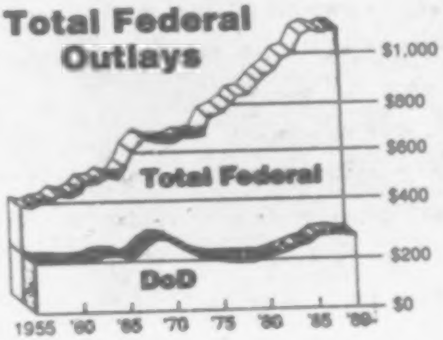
Air superiority is an essential prerequisite of sea control, our critical mission. Sea control is necessary for the reinforcement of Europe and any successful amphibious operation. Forward-deployed land and air forces profit from the assurance that their supply lines are secure from interdiction. The defense of Europe would be imperiled without sea control. Entire military theaters critical to the fate of both Europe and the United States, such as the Western Pacific and Southwest Asia, could not credibly be defended at all without a strong Navy. Although Carrier Battle Groups have an awesome offensive power projection capability, they are first and foremost a naval force which seizes and maintains air, sea, and undersea superiority so other forces and other services can operate safely beyond the reach of friendly air forces.

More than any other investment in overall national security, our carriers have repaid their full value to this country in real-world impact as well as continuing deterrent capability. For a maritime power, with global security requirements and alliance linkages spanning the world's oceans and seas, fifteen Carrier Battle Groups represents "reasonable sufficiency" and the means to carry out critically important peacetime presence and crisis control operations while limiting deployments of personnel to six month periods away from home.

During the past year, our Naval Reserve force has made a superb and meaningful contribution, particularly in the Persian Gulf. We will continue to expect that degree of response in the future. But, we must be prudent in the choice of roles we assign to our reserve personnel. In peacetime, they are available for only limited periods of active service. We should not assign them to roles where personnel stability and training continuity are essential to the safe conduct of often hazardous operations which are the day-to-day challenge of forward deployed forces. The conduct of high intensity operations, such as aircraft carrier flight operations on a continuous basis, requires long work-ups and repeated practice to maintain readiness.

I recognize the fiscal realities facing our nation. I am also acutely aware that a strong defense is a necessity and it is affordable by any reasonable standard of economic measurement. The proposed 1990 defense budget will be about 5.4 percent of our GNP; 20 years ago it was over 8 percent-and we had a balanced budget. Comparing graphs of defense and non-defense spending quickly reveals that while defense spending has increased only slightly, the upward slope of the federal deficit coincides with significant rises in non-defense spending.





In recent years, contrary to an often depicted picture of a Navy on a wild spending spree, review of the statistics will show that from 1980-89, the Navy had the lowest average annual real program growth of all the services. In fact, in three of the past five years, we have experienced negative real growth. This is a matter of serious concern to me. The requirement to provide a strong national defense is fundamental, unchanging, and affordable. We should not trigger a downward spiral in readiness by eroding the gains in capabilities made during the past eight years.

During this period we have worked hard to expend wisely the resources you have provided on sensible high payoff programs. Our record of successful management of high technology programs will stand up to scrutiny. Over the past eight years, the American people have made an intelligent investment in a competent, combat-ready Navy that has made dramatic, real-world contributions to U.S. policy and peace. Our citizens know it, our allies know it, and our potential adversaries, from the Soviets to the Third World, know it. It is the collective responsibility of the Navy, the Administration, and the Congress to maintain and protect our nation's investment in maritime superiority.

A variety of stories have appeared suggesting that somehow the nation didn't get its money's worth on the defense recovery. That is, pure and simple, nonsense. Today's Navy is immeasurably better by any standard than it was 10 years ago. We have a large number of procurement success stories; systems that have been developed efficiently and whose operational performance has met or exceeded our every expectation.

Multiship procurement and fleet introduction ahead of schedule of two Nimitz-class nuclear powered Aircraft Carriers, AEGIS Cruisers carrying the finest AAW system in the world today, F/A-18 Hornet Fighter/Attack Aircraft, Trident/D5 SSBNs recognized by GAO as a model program for how to do it right, LAMPS MK III Seahawk Helicopters, TAGOS ASW Surveillance Ships, Harpoon and Tomahawk Cruise Missiles, Flight III FFG-7 Oliver Hazard Perry Frigates, LSD-41 Whidbey Island Amphibious Warfare Ships, just to mention some of the larger and more-complex systems. All stand as credible examples of successful programs that have translated into forces operating today at sea with greater combat capability than the systems they replaced.

This is an important point; we have largely succeeded in our conscious attempt to field systems with lower operations and support costs than the systems they replaced. Not only have we done that, but many of these systems require fewer people than the ones they replaced. Spare parts bins and ammunition magazines have been, for the most part, replenished. Equipment is in a high condition of repair. Since 1981, measurements of overall readiness for surface ships have risen over 100 percent, and aircraft squadrons have improved over 250 percent. Many of our new, advanced systems have been proven in operations with Libya and in the Persian Gulf, demonstrating that we have built the right kind of Navy for lower level conflict. This was reaffirmed to me recently by a panel of distinguished civilians who examined the Navy's warfighting ability in lower level conflict and concluded that "current Navy posture, equipment, and training are in large part appropriate for and necessary for lower level conflict."

We have also made great improvements in the Navy's Strategic Sealift programs. Since 1982, the Navy has expended $5.4 billion on new ship construction and conversion to include fast sealift ships, expansion of the Ready Reserve Force, Maritime and Afloat Prepositioning Ship programs, hospital and aviation logistics ships, and the Sealift Enhancement Program.

Finally, and most important of all, during recent years we have recruited and are retaining, generally in the numbers we need, the finest and highest quality force of men and women in our history.

One system that could be highlighted as a procurement success is the remarkable Trident II (D-5) sea-based strategic weapon system, the most survivable leg of the U.S. strategic nuclear triad. It will provide an enduring and survivable hard target capability at sea. Compared to the Trident I (C-4), the D-5 missile will have twice the accuracy, greater warhead yield, and 50 percent more payload capability. The system provides the option for conducting patrols in expanded operational areas, ensuring its continuing invulnerability and unquestioned preeminence as the keystone of the nation's strategic deterrent.

We cannot be complacent about our success in rebuilding the Navy over the past decade. None of the strides we have made have come easily, and much of what we have gained over the past years could, without continued commitment to excellence, be dissipated. We need to sustain steaming days and flying hours at minimal acceptable levels to meet readiness and safety requirements. The sea is unforgiving of human error.

Ashore, we need funding for base operational support and maintenance of real property, or we will be unable to provide our fleet with the support required for combat-ready performance. On the people side, we need support for more effective recruiting, construction of military housing, and improvements in Navy medicine.

To safeguard the progress we have made, and to prepare us to meet the future, I have three overarching priorities that pervade all other issues:

First, our people: They make the difference. It is how our people use weapons that provides the cutting edge and winning margin in any conflict. We need to be able to continue to attract and retain the enthusiastic, patriotic, bright, and incredibly hard working men and women that are the Navy of today. In this regard, we appreciate past support by the 100th Congress on many of these vital issues affecting our people and look forward to continued efforts to provide a decent quality of life for our sailors. Our people accept an arduous life style, make tremendous sacrifices, work long hours, and ask for very little in return. Today, despite the recent pay increase, the disparity between the Employment Cost Index and military pay stands at 10.1 percent. I urge this Congress to recognize and seek to close this gap, and provide support to programs to reduce the drastic shortages of affordable military housing, as well as continue to meet the need for morale, welfare, and recreation enhancements that communicate in a visible way our commitment to the quality of life of our people.

Second, maintaining a balanced and effective naval warfighting capability: Since World War II, Naval forces have been a principal instrument of our crisis response in 80 percent of over two hundred separate incidents. We are called first and deploy the farthest -- and in today's environment, can expect to face well-equipped and tenacious opposition upon arrival. Maintaining the balanced capability required to respond and win in a wide variety of demanding potential scenarios is my next overarching priority. This means having a Navy that is capable of winning in a global war -- should deterrence fail. It also means having a Navy that is flexible enough to achieve our national objectives in any conflict short of global war. It includes maintaining a force centered on 15 deployable Carrier Battle Groups, 4 Battleship Battle Groups, 100 Attack Submarines, Amphibious Lift for a Marine Expeditionary Force and a Marine Expeditionary Brigade, and sufficient Strategic Submarines, Support Ships, and Strategic Sealift.

Our balanced capability requires us to move forward with the economical procurement of CVN-74 and CVN-75, maintaining our minimum peacetime requirement for 15 deployable carriers. In view of present worldwide commitments and the uncertainties of forward bases to support unilateral U.S. military activity, aircraft carriers provide the one viable alternative to overseas bases.

Third, achieving required future capability: We must look to the future as we allocate resources today, wisely planting the seedcorn of research, development, test and evaluation. This will include incorporating key advances in advanced anti-submarine warfare technologies, low-observability, command and control systems, long range cruise missiles, and space systems.

The A-12 is a good example of how we are translating key advances into an aircraft that will improve our all-weather attack capability by an order of magnitude. I am committed to this program and the ATF, which are being pursued in cooperation with the Air Force. Another example of our development of the most promising advanced technologies is the Navy's commitment to the use of integrated electric drive propulsion for the next class of surface battle force combatant. This will provide many advantages: a smaller engineering package and a related increase in mission payload; increased flexibility, redundancy and efficiency in operations permitting minimum crew manning; and potential power for directed energy weapons and advanced sensors. Advances such as this will help keep the Navy on the forefront of technology and permit the development of the advanced future capability we will require.

One final topic is the Goldwater-Nichols Reorganization Act of 1986. As you know, we have been aggressively proceeding to fully implement all aspects of the law. In this regard, I want to thank you for your support in ameliorating some of the implementation difficulties we were facing. However, I remain concerned about certain aspects of Title IV, particularly excessively rigid criteria to meet Joint Professional Military Education requirements and the joint specialist certification process, as well as the administrative and career-planning burdens imposed on the services. We have made significant progress in meeting all the requirements of the Goldwater-Nichols Act and will continue to work closely with the

Congress on the issues needing further adjustment.

In closing, I would like to highlight the role of the United States as the leader of a global maritime coalition, a group of free nations linked by our common belief in freedom of the seas, a dependence on sea lines of communication, and a shared requirement for maritime defense. In this era of increased emphasis on burdensharing, it is important to note the contributions many of our allies and friends who form this maritime coalition make to our mutual security interests. Through mutual security efforts undertaken with our coalition partners, the U.S. Navy is able to maintain a forward deployed presence that makes a significant contribution to stability in many regions of unrest. As we recently saw in the Persian Gulf, U.S. leadership is often the catalyst that draws our allies and friends into supporting roles during crisis. This fundamental role, providing leadership and peace through strength, is at the heart of our Navy's mission today and in the future. My assessment is that today we are good -- ready to fight and win at sea. It is a fact of life that our Navy will continue to be the force of choice in the real world. With your support, we will be ready when called upon to serve our national interest on distant seas wherever and whenever required.

The Need for Maritime Power

The United States has been and always will be tied to the sea. Our geopolitical position is that of an island nation, blessed on our land borders by fraternal neighbors but linked to the rest of the world through multiple overseas alliances and trade routes. We have spent the greater part of our nation's history looking at the oceans as a buffer, protected from direct threat by a continental land power; yet we are inextricably linked by trade, alliance, friendship, and threat to the rest of the globe -- a situation which unequivocally requires forceful, intelligent use of the seas.

Sea power is at the heart of our ability to influence international events by virtue of U.S. politics, economics, strategy, and culture. Since the end of the Second World War, we have been deeply involved in a system of multiple alliances stretching across the seas. As the leader of this global maritime coalition, our nation must operate fleets capable of sailing in strength on every ocean. Sea power enables us to bring mobile, flexible forces to bear during international crises, and helps to form the bond that holds our maritime coalition of free nations together. We are bound similarly to the seas by our involvement in a complex and interdependent global economy. Petroleum, strategic minerals, high-technology imports, and many other vital products and raw materials must come to us via sea lines of communication.

As a part of this global economy, our markets and a significant portion of our industrial base are moving overseas. U.S. trade during this decade has increased dramatically, from 482 billion dollars in 1980, to 776 billion dollars in 1988. It is worth pointing out that the overwhelming majority of this vital trade, nearly all goods -- export and import -- was carried aboard surface ships. However, U.S. flag merchant vessels carried less than five percent of our foreign commerce.

This expanded global network of overseas interests underscores the unacceptability of constraint of trade, through terrorism, conflict or impending crisis and highlights our economic interdependence with the world's trading centers -- links dependent on the sea.

From this strategic standpoint, sea power is the necessary foundation to protect our global interests and execute our national strategy. Maritime superiority is the essential prerequisite to the successful defense of our country, our allies, and our vital interests. Control of the sea allows us to execute forward, offensive operations in defense of Western Europe and in the Pacific, in conjunction with our allies and friends as necessary. Finally, there is a strong and enduring cultural element in our requirement for sea power. Our Navy is a symbol of U.S. involvement in the global arena. A withdrawal from the forward commitment of naval forces would send a signal of retrenchment to the world. Such a reduction in the presence or capability of U.S. sea power would inevitably be interpreted as a step toward isolationism and disengagement -- precisely the wrong signal to send to a turbulent world that looks to the United States for leadership and stability.

In the global arena there are forces that represent political, economic and military challenges to us. The Soviet Union, a state espousing values antithetical to our own, continues to represent a clear security challenge to our nation. Additionally, a number of individual states in the Third World are capable of creating turmoil and international instability on a regional basis in ways that directly threaten U.S. citizens, property, and interests. Finally, terrorism, state-sponsored or otherwise, remains a plague upon our times, and moreover, given the spread of religious and social unrest in so many strife-torn areas, one that is unlikely to recede.

In meeting these challenges, we have developed a national security strategy built solidly on three enduring premises:

Deterrence: We must maintain the military capability to deter our enemies from either attacking us militarily or attempting to undermine our global position. Such deterrence is operative at every step along the ladder of conflict, and includes both conventional and nuclear components.

In particular, the Navy's contribution to strategic nuclear deterrence at the upper end of the ladder of conflict is worth highlighting. We provide nearly 50 percent of the nation's strategic warheads for only 25 percent of the total strategic cost. In any potential post-START strategic arrangement, the potent Trident/D-5 system is likely to remain the most cost-effective and survivable element of the nation's strategic deterrent.

At the conventional level, the general purpose naval and strategic sealift forces provide a day-to-day deterrent of great impact. Our Navy, ready, mobile, and flexible, is capable of applying force throughout the globe. Would-be aggressors against U.S. citizens or property anywhere in the world have recent examples of the reach and impact of naval power -- the Libya strike, Achille Lauro capture, and Grenada rescue operations among others. In the face of such retribution, many potential attackers have refrained from striking either directly or indirectly against U.S. interests.

Strong Alliances: Our national security strategy is predicated upon an enduring alliance system that has remained largely intact since the end of the Second World War. Our NATO, Pacific, and Rio alliances, and many existing bilateral agreements, are based on the mutual interests of the signatories, and often represent an effective division of labor between allies. Many of our allies operate professional navies, and often contribute in many demanding scenarios -- recent escort and minesweeping operations in the Persian Gulf are examples. Our Navy-to-Navy contacts help to ensure that the United States will remain at the forefront of a global, free-world coalition of nations dedicated to the furtherance of peace.

Over the coming decades, although there may be shifts in relative responsibility or level of effort, we will remain the leader of this global alliance. As a result, the future cohesion of this partnership will depend on our management of burdensharing. We must use burdensharing to strengthen our alliances, not as an excuse to reduce defense budgets. As the Secretary of Defense recently commented, there is no question that America's allies should strive to shoulder more of the burden of their security and the security of allied interests outside their borders. In many instances, we see superb cooperation and assistance from our sister navies in allied countries. Our NATO and Korean allies provide strategic sealift for their own mutual support. The efforts of the European Navies in the Persian Gulf and the Japanese military capability improvements in the Pacific are examples of the positive cooperation within this maritime coalition. A further example, linked to budgetary concerns, is the cooperative procurement of a variety of maritime warfighting systems, including the NATO AAW program, a joint effort among six NATO partners to improve alliance AAW capability through combat system design.

One final aspect of our global maritime leadership is the role of the United States in improving the naval capability of our allies, many of whom are badly in need of our assistance to maintain a viable combat capability. In this regard, we must provide realistic levels of security assistance and military education and training to our friends. We are woefully behind the Soviets in this area. We must work to improve naval assistance to such other friends and allies as Pakistan, South Korea, Greece, Turkey, Portugal, Argentina, Brazil, Chile, and Peru as part of our approach to coalition warfare against any potential adversary.

Forward Operations: The basis of our national strategy is to defeat the enemy as far forward as possible. This means first deterring any potential aggressor with on-scene forces and, if required, fighting in the enemy's waters and on his shores rather than our own. To this end, we deploy U.S. military forces overseas on bases in allied nations and at sea in forward positions during peacetime. This gives us the flexibility to contain a crisis early -- when it counts. Naval forces, in particular, have proven to be best employed by seeking out and engaging the enemy in offensive operations where we seize and hold the initiative. It is the inherent flexibility and mobility of naval battle forces that has permitted the United States to react promptly and effectively to regional disturbances affecting our national interests.

In this context, the maritime component of the U.S. national military strategy is not a war plan or a go-it-alone timetable of warfighting operations, nor is it a justification for force structure. It is a fundamental supporting element of the overall national military strategy, and as such represents a concept of operations for the effective global employment of maritime forces as a deterrent force or in the event of combat.

Recent discussions have addressed possible competitive strategies to align enduring U.S. strengths against enduring Soviet weaknesses in a point-counterpoint sequence, seeking to exploit areas of potential high leverage, and permitting a focus on the most effective use of our resources. The U.S. Navy today brings traditional naval strengths to bear against both Soviet and Third World adversaries where they are the weakest by exercising sea control; executing power projection with tactical air strikes, cruise missiles, and expeditionary forces; and providing the necessary sealift to project the appropriate force mix at the right time. The use of naval forces is in itself a competitive strategy in being that has been proven over time. We are likewise pursuing specific technological initiatives that fulfill the concept of competitive strategies, including stealth and counter-stealth systems, long range, highly accurate cruise missiles, and advanced avionics in our aircraft. The employment of mobile, flexible naval forces equipped with advanced weapons is an effective competitive strategy. The Navy-Marine Corps Team brings to the Competitive Strategy Concept mobile, elusive, and technologically superior forces capable of exploiting enemy weaknesses swiftly.

The essential value of naval forces -- an ability to operate autonomously in areas where we have no permanent base structure -- is unlikely to change. Naval forces are capable of suddenly appearing on the horizon of most countries of the world, signaling presence and power, then withdrawing beyond the horizon at any time without sounding retreat. They are capable of applying force with extreme precision or overwhelming force. As we saw in the Persian Gulf, those qualities are ideal in a politically constrained environment. This very flexibility and mobility can be maintained notwithstanding constrained access to our bases overseas, or in the absence or partial absence of complex logistic support, or without permission from reticent third party states. Forward deployed forces can overcome the problems of time and distance, reducing response times to acceptable levels and remain on station for as long as required. Such attributes are unique to naval forces.

Future Security Environment

The international security environment of the coming decades will present the United States with significant opportunities and major challenges. As economic and political realities continue to change, we will see the codification of the shift from a bipolar to a multipolar world power balance. Japan, China, and a unified

Western Europe will all exercise unique strengths to exert an increased impact on global events. At the same time, some emerging powers, such as India, might be expected to increase their economic and military power, perhaps becoming dominant regional players. In this context, several important trends -- many consistently identified in prestigious national studies such as the report on national strategy entitled Discriminate Deterrence -- are germane:

o Proliferation of advanced, high-technology weapons throughout the Third World, including biological and chemical weapons as well as tactical ballistic missiles, relatively advanced submarines, smart cruise missiles, and more sophisticated command and control systems will be a serious concern.

o Explosive population growth in several key developing countries may lead to potentially unstable domestic conditions.

o Continued threats in the global periphery from terrorism, radical developing countries, and transnational coalitions, such as drug cartels, could adversely impact U.S. interests.

o Continued access and overflight constraints limiting the use of bases, reduced from a network spread across about 100 countries at the end of World War II to under 40 today, will underscore the continued need for flexible and mobile naval forces.

o Dependency of U.S. industry on overseas centers of high technology for advanced "raw materials" (computer chips, electronics, synthetic materials) may increase.

Taken together, this future security environment portends further involvement of the U.S. Navy in protecting our national interests throughout the world. The challenge will be executing demanding tasking while maintaining sufficiently high capability to deter the Soviet Union.

The Soviet Threat

Despite the public discussions of "reasonable sufficiency" and the promise of reduced armaments, Soviet warfighting capability continues to grow. Evidence clearly shows that the Soviet Union is continuing to build advanced, multi-threat submarines, surface ships, and aircraft at high rates. Their production lines are turning out highly offensive, blue-water oriented platforms with superb weapon and sensor suites. Examples of recently introduced Soviet military platforms and weapons include the highly sophisticated **Akula** class nuclear attack submarine, the new **Tblisi** class large deck carrier which will be introduced to their fleet in the next few years (which, at 65,000 tons, is comparable in size to our own **Midway**-class), and the continued development of long range sea launched cruise missiles, including the SS-N-21 and SS-NX-24. In the recently published Soviet work "The Navy: Its Role, Prospects for Development and Employment," the Soviets voiced their goals for submarines that can travel at up to 100 knots submerged, dive to 6,600 feet, and fire 300 knot torpedoes -- all of which sounds more like "excessive capability" than "reasonable sufficiency." It is likewise difficult to imagine what requirements are driving a continental land power like the Soviet Union to produce a class of large-deck, blue water aircraft carrier.

At the same time, the Soviets continue to provide an enormous amount of foreign military sales, security assistance, and military training and education to a wide variety of client states around the world. In 1987 alone Moscow delivered $21 billion of military material to over 30 nations. One expression of the influence gained by arms shipments is the number of military advisors the Soviet Union stations in these countries. Today, there are more Soviet military advisors in Latin America (including Cuba) and Africa than the United States has throughout the world.

The insistent realities of Soviet military power will require a sustained emphasis on both our national defense and maritime superiority. Naturally, we must listen carefully and hopefully to Soviet arms control proposals, working from a position of strength to ease relations between our countries. We must, however, maintain vigilance and readiness while we negotiate in those areas that seem to hold promise for improved security. The simple fact is that the Soviet defense industry has not visibly slowed and that their formidable military power continues to operate throughout the world.

The Soviets may or may not be reshaping their global strategic vision. While the Soviets posture publicly with Seeming benevolence, the true long-term impact of "perestroika" on the Soviet military is unclear even to experienced observers. Certainly, we have seen no lessening of the Soviet drive to obtain advanced Western technology and military plans, in order to modernize the forces they continue to bring forward at a rate that belies the image of "reasonable sufficiency" they would have us accept. We may be witnessing a shift from the politics of stalemate to the politics of maneuver between our two nations -- a period that would require particular care for us in the West.

The Soviet Union is pushing hard in propaganda and public diplomacy for some form of naval arms control that would restrict U.S. freedom of movement by the creation of naval exclusion zones and operational constraints -- what they call "zones of peace." In a variety of arms control fora, severe limitations on sea launched Cruise Missiles and on aircraft carriers have been proposed, indicating that these weapons systems are a major concern to the Soviets. Recent statements by both Secretary Gorbachev and Marshal Akhromeyev convey an unambiguous intention to seek naval confidence and security measures which would limit naval forces. These initiatives are not new -- both types of initiatives have been seen before -- but they have been pursued more intensely in the past two years. Such proposals are self-serving, aiming to reduce the effectiveness of both conventional and nuclear deterrents -- in effect, capturing the U.S. Navy, what the Soviets refer to as "the problem."

Whatever the Soviets seek today, the long historical record of Russia is one of international expansion and internal turmoil. We must see deeds, not words, from the Soviets, and keep our trust in our strength, not their promises. The key to analyzing any military organization is a realistic examination of its military capability. Stated intentions are not meaningful when compared with the ability to inflict enormous punishment on an opponent. Such is the case with the Soviet Union today -- we must judge them coldly on the basis of their ability to harm our interests, not simply on their more reassuring statements of new defensive doctrine.

State of the Navy Today

Nothing is more critical to our ability to perform our assigned mission at sea than our Navy men and women. Without them, our advanced technology, training, tactics, and strategy will fail. Yet we are poised today at the top of a roller coaster we have ridden before; over the next few years, unless we are vigilant, the gap between the Employment Cost Index and military pay may widen while benefits our people receive will decline. Given the demographic constraints all services must face, recovery will be expensive and difficult -- as indeed it proved to be eight years ago. Today, we are fortunate to have the very best of a generation serving their nation at sea in dangerous, demanding jobs. As I look ahead, I wonder whether we will be able to continue to attract such a superb group in a potential environment of reduced pay and benefits. Good people are my top priority. With them, we can prevail at sea in any conflict.

The building programs of the past few years have moved us closer to fulfilling the requirement for a military capability centered on 15 deployable Carrier Battle Groups, 100 Attack Submarines, 4 Battleships, amphibious lift for a Marine Expeditionary Force and a Marine Expeditionary Brigade, sufficient Strategic Submarines, Destroyers and Cruisers, Combat Logistics Ships and Minesweepers, and a Strategic Sealift program which is capable of projecting forces worldwide. Despite intensive operations, readiness continues at a high level, and the recommended construction programs in the FY 90-91 budget proposal will sustain our Fleet at the level required to perform critical missions throughout the globe. This year our building program is even more critical as we encounter the projected replacement of older ship classes in an austere shipbuilding environment.

One question often asked is "Why 15 deployable Carrier Battle Groups? Couldn't you get by with fewer carriers?" The answer, quite simply, is no -- such a feat is simply not possible without a reduction in commitments and a concomitant increase in risk. Every Chairman of the Joint Chiefs of Staff since World War II has validated minimum risk warfighting requirements for over twenty Carrier Battle Groups, and our planned number of deployable CVBGs reflects a minimum in every sense. The carrier remains the only way to take tactical aircraft to sea -- and those aircraft remain the arbiter of sea control on the maritime battlefield. To maintain even a semblance of a home life for our sailors by keeping deployments to "only" six months, we need at least 15 deployable CVs.

Our Carrier Battle Groups are the centerpiece of our naval capability, because they represent the most effective and complete way to establish and maintain control of the seas. There is no substitute for them in peacetime or in war. Sea control is an often used and under-appreciated term. It is the fundamental mission of the U.S. Navy today, and will continue to be absolutely vital to the execution of any mission at sea for the foreseeable future. In simplest terms, it is the capability to conduct extended operations at sea to engage and destroy enemy forces beneath, upon, and over the seas. It includes denial to the enemy of access routes to the sea, protection of vital sea lines of communication, and using the sea for any form of combat operations. Sea control must be earned at sea, with potent naval forces. It is our primary task.

In a wartime environment, while we are establishing sea control, we would be, at the same time, executing our required tasks of strategic sealift -- getting the Army to Europe; and power projection with tactical aircraft, cruise missiles, and expeditionary forces -- which would keep our adversaries off-balance and on the defensive. Without sea control, our U.S. military strategy is at grave risk.

Given our national commitments to keep sufficient naval forces forward for potential contingencies in the Mediterranean, Indian Ocean, and Pacific, Carrier Battle Groups on the front lines are a requirement, not a luxury. To meet our fundamental security obligations in peacetime, we recognize commitments to maintain four Carrier Battle Groups deployed in forward areas, the nearest of which is 3,500 miles from the United States. Additionally, three Carrier Battle Groups must be ready for immediate surge operations within 48 hours. Each of the remaining Carrier Battle Groups maintains a rigorous schedule of training and maintenance so as to be ready to deploy, if necessary, in as little time as feasible. In recent years, our Carrier Battle Groups have been used many times in demanding roles supporting U.S. policy in real emergencies on the front lines of defense, from Libya to Korea, from Grenada to the Strait of Hormuz.

Indeed, every President's first response to any international security crisis since the Second World War has been the question:

"Where are the carriers?" The answer to this question has been the foundation of our forward strategy: They are where we need them -- forward deployed and battle-ready. If we are to maintain them in such readiness and meet required commitments, we need the full measure of fifteen deployable Carrier Battle Groups. There is simply no other investment in national security that has so often repaid its full value to this country in real-world impact as well as continuing deterrent capability. For a maritime power, with global security requirements and alliance linkages spanning the world's oceans and seas, fifteen Carrier Battle Groups represent "reasonable sufficiency."

Reducing carrier levels below 15 without a concomitant reduction in our worldwide commitments will inevitably lead to a repetition of the descending readiness spiral of the 1970s. That period saw the irreplaceable men and women who manned the fleet overextended to the point where they departed in record numbers, while the ships and aircraft upon which their effectiveness and our security depended were allowed to deteriorate to unsafe levels of readiness. The relationship between carrier force levels, overseas commitments, and the amount of time away from homeport is a straight-forward equation. If commitments do not significantly change -- which is unlikely since deployed Carrier Battle Groups are manifestations of vital national interests -- and force levels do not achieve minimum requirements, then the result is an increased burden on our sailors and our current inventory of ships and aircraft. They will be deployed longer, their time in homeport will be shorter, and they will have to deploy again sooner.

In the final analysis, our Carrier Battle Groups are the nation's force of choice in peace and war. There is simply no substitute for their capabilities in peacetime or in war. Without 15 Carrier Battle Groups, our people and our force structure will be stretched beyond the limit, with predictably negative results. In an era of global unrest and dwindling overseas bases, 15 Carrier

Battle Groups is the right number for deterrence and crisis response. When all is said and done, Carrier Battle Groups are the most cost effective and combat capable system in the U.S. inventory, and will remain the cornerstone of U.S. naval capability.

It is worth considering that in the 1950s, the Congress made funding decisions to build USS Saratoga, which we still operate as a front line carrier -- and which, thanks to a service life extension, will operate for another 20 years --and Wheelus Air Base in Libya, which Colonel Quadafi now operates. In the 1960s, we likewise funded both the USS John F. Kennedy and the airfields in Cam Rahn Bay and Da Nang. Post World War II history indicates that we will always need air power at the scene of a crisis; only Carrier Battle Groups can reliably deliver it.

Naval Operations 1988

The past year was marked by a tremendous diversity of demanding naval operations throughout the world, particularly in the Persian Gulf. In the demanding environment of the Gulf, the Navy was presented with an opportunity to validate our force structure in lower level conflict. The warships, weapons, sensors, and C3I systems that we have built worked well in the most demanding and realistic environment imaginable: combat. Our ships are built to fight around the world and on every rung in the ladder of escalatory violence. In the Persian Gulf, despite tactical challenges at every turn, our forces clearly helped achieve a strategic victory for the United States.

Throughout the conflict, combat systems and warfighting doctrine were used and modified by the on-scene commander as the tactical situation dictated. When new or unexpected challenges presented themselves, solutions were found using current military systems --

including integrated tactics and equipment from our sister services and allies. This is the most fundamental aspect of warfare, and demonstrates thorough preparation and a well-balanced force structure.

Indeed, the ability to change tactics and introduce different systems into a combat environment is an indication of a war-ready military. The right warships and systems were available on scene in a distant sea and were used for the task at hand in the Persian Gulf. Throughout this experience, we saw demonstrated the immeasurable value of national resolve and a professional military.

Our European allies were deeply involved in many aspects of our mission in the Persian Gulf, as were our sister services. Indeed, during 1988, the largest concentration of allied sea power since the Second World War operated in the North Arabian Sea and Persian Gulf. We successfully completed 82 convoys in 1988 without losing a single tanker; repelled a coordinated Iranian attack in April while destroying a significant part of their surface Navy; maintained an essentially mine-free passage throughout the Gulf; captured Iranian mine-layers in the act of illegally mining international waters; and, in general, brought a measure of stability to a dangerous and turbulent corner of the world. In the final analysis, the real success was in demonstrating the credibility of U.S. foreign policy, backed up by a forward deployed and combat ready Navy. Perhaps the best evidence of this was heard night after night on the bridge-to-bridge VHF communications circuits in the region, which were filled with transmissions from civilian merchant captains to our Navy vessels: "Thank you, American warship. Thank you."

Was the Persian Gulf a perfect success? In combat, nothing is perfect. But when problems and challenges arose, we learned our lessons and applied them well. Naval Reserve personnel from the Naval Control of Shipping units served aboard U.S. flag tankers being convoyed under U.S. Navy protection in the Persian Gulf.

These specialized reservists provided guidance to ship masters and civilian shipping authorities. The damage control lessons of the Stark were applied by the crew of the Samuel B. Roberts after she struck an Iranian mine; the courage and indomitable spirit of the Roberts' crew, combined with new equipment and training, resulted in a remarkable performance in saving the ship. Our Military Sealift Command successfully brought the Roberts home for repairs. She will soon be ready to return to the fleet. While we all deeply regret the sequence of events that resulted in Vincennes' missile launch against an Iranian airliner and the subsequent tragic loss of life, we are applying lessons learned in that situation to future training. In the end, your Navy was able to accomplish the missions assigned, and the success of the escort operations had a positive effect on the eventual achievement of a ceasefire under circumstances favorable to U.S. policy objectives.

In the Pacific, Navy forces were operating in a peacekeeping role off the coast of Korea during a delicate few weeks in September. While most of us were enjoying the performance of American athletes in the late-summer comfort of our homes, thousands of young sailors in the Nimitz and Midway Carrier Battle Groups were standing long, arduous watches in the hot engine rooms and on the rolling decks of Navy ships. The message was clear and the games were without incident -- another example of the far-ranging impact of Naval operations abroad. At the same time, other Navy forces were operating throughout the Pacific, participating in exercises with our allies in the Philippines, Thailand, Australia, Japan, and Malaysia. Other support ships were shuttling supplies and fuel along the extended logistics chain through the Pacific and Indian Oceans and leading to our forces in the Persian Gulf. Underway, every day, your Navy ships led the way throughout the broad Pacific.

On the other side of the world, operations in the Mediterranean and Black Seas were additional examples of the deterrent effect of sea power. In a region rife with potential terrorists, Navy Carrier

Battle Groups have provided deterrence with their presence and reacted with controlled application of force in defense of U.S. interests. The Achille Lauro and the air strikes on Libya - and most recently the downing of two Libyan fighters demonstrating hostile intent toward U.S. aircraft -- remain clear reminders to those who would undertake terrorism and irresponsible actions. Our forward presence is a constant reminder of U.S. power and resolve on station, where it belongs.

Finally, operations closer to home have increased in importance over the past few years. In addition to the 29th consecutive Unitas Exercise that brought together ships from nine Latin American Navies for over six months of extended mutual training, our Naval forces have continued to play an important part in the interdiction of drugs entering the United States in 1988. Working closely with Coast Guard detachments for actual law enforcement tasks, our ships and aircraft help in surveillance and interception missions against unauthorized vessels seeking to illegally enter the United States. Indicative of our efforts was the announcement that USS McCloy, a Navy frigate, became the first "drugbusting ace" for their fifth and sixth drug seizures last August.

The Challenge of Tomorrow

Making decisions today that will shape tomorrow's Navy will be the most fundamental challenge I will face for the remainder of my tour. Critical decisions concerning people, technology, tactics, and strategy are upon us. They cannot be pushed aside. In particular, we are at a watershed in naval technology, and the decisions we make over the next several years will have a deep and lasting effect on the way we fight at sea for a generation and more.

Emphasis for the future must be on recruiting and retention of high caliber young men and women who want to serve their nation at sea on sophisticated, high-technology warships. Declining numbers of potential recruits will make our retention efforts, inextricably tied to pay, benefits, and quality of life programs, the most important single aspect of manning our Navy. Even now we are seeing a slight decline in retention of our outstanding sailors, as reenlistment rates are the lowest in the past five years. At the same time, we are competing in a robust economy for a youthful labor pool predicted to shrink at least through the mid-1990s. To meet these retention and recruiting problems while maintaining the highest quality manpower possible will be our most important future challenge.

We will continue to offer new recruits and veteran sailors alike a superb working environment of unequaled challenge; an opportunity to serve their country in ways that will make them better citizens. We must continue to provide support for their families; a lifestyle of personal excellence that emphasizes physical fitness, individual growth, respect and equality, and the highest standards of ethical conduct. Those who select this path will be provided with opportunities for leadership and responsibility at an age when many of their contemporaries have not yet settled on a productive career. We have recently completed an extensive Equal Opportunity study and are actively working to ensure an equitable and impartial environment for all our naval personnel.

An area in which we received a great deal of support from the 100th Congress was in meeting our standards for both numbers and quality of Navy men and women. However, we are still suffering from shortages in certain critical technical specialties among our enlisted force -- a problem that can be helped by funding for selective reenlistment bonuses, targeted only at a critical 23 percent of our personnel. In the officer ranks, we are continuing to experience difficulty retaining several categories, including pilots, nuclear trained officers (both submarine and surface) and medical personnel. Because of intense recruiting by the airlines, which anticipate three times as many requirements for new pilots as military separations alone would fill, we have a current shortage of approximately 1500 midgrade pilots (up from 1100 last year). Likewise, we have a shortage of over 500 senior grade nuclear-trained officers who man our vital submarines and nuclear surface combatants. We will continue to work with the Congress to establish appropriate incentives to retain officers in these vital categories.

An additional issue facing our officer corps is the impact of Title IV of the Goldwater-Nichols Reorganization Act of 1986. I fully support and applaud the underlying policies and purposes of Title IV -- the enhancement of joint thinking, planning and operations, by ensuring the assignment of top quality officers to joint staffs and by requiring that our top military leadership receive joint professional military education. The implementation of its complex provisions, however, has been particularly difficult in the Navy. Although the amendments to Title IV passed by the Congress last year provided needed relief in many respects, I remain concerned about certain aspects of the law, especially the unnecessarily rigid criteria controlling joint tours and joint specialty officer (JSO) designation. Indeed, I fear that the complexities of the current Title IV approach have created an officer personnel labyrinth that removes the flexibility needed to manage our force effectively and develop the essential education and operational experience in our officers as they prepare to command forces at sea. We must remember that our strength, our real advantage over any adversary, is embedded in the ingenuity, leadership and warfighting skills of the individual American service member. For the naval officer, these traits must be developed and honed through repeated experience in the exacting environment of sea duty. Diminution in the seagoing experience and professional exposure needed to master the demanding profession of naval warfare risks sacrificing the full leverage of our greatest strength -- the trained and experienced warfare commander. Having made these observations, I want to assure you that Navy is proceeding at flank speed to fully and faithfully implement the provisions of Title IV as it now stands. As we continue to gain implementation experience, we will keep the Congress apprised of our progress.

Another concern for the future that directly impacts our people is our ability to provide quality health care. In May 1988, the Secretary of the Navy established a Department of the Navy Medical Blue Ribbon Panel, chaired by the Vice Chief of Naval Operations, to recommend actions that would improve access to Navy hospitals and clinics for all beneficiaries, reduce the dependency on the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS), and revitalize Graduate Medical Education. This Blue Ribbon Panel called for increased focus on optimal use of existing Navy hospitals and clinics, assignment of top priority to Graduate Medical Education, and development of measures of effectiveness to evaluate Navy medicine. They also recommended documenting and communicating meaningful improvements in Navy medicine, pursuing cost effective solutions, and maintaining the Blue Ribbon Panel and Flag Officer Working Group to monitor the implementation of initiatives. We are also pursuing several different approaches to increasing the number of experienced active duty medical personnel. We are fully committed to recruiting and retaining the physicians, nurses, corpsmen, and other personnel needed to provide medical care to our Navy-Marine Corps family. The number of recruiters working to increase accessions in the field has been dramatically increased and the investment is beginning to pay off. With your support, we will continue to work toward our goal of providing the best health care to all our Navy beneficiaries.

In addition to the challenges facing us on the personnel side, a key element of our future warfighting capability will be the development of leading edge technology to provide our fighting forces with equipment superior to any adversary. A wide variety of exciting technologies are in the development stages today that must be properly funded to bring them to fruition. Among the most critical are anti-submarine warfare, integrated electric drive propulsion, stealth and counter-stealth, battle management, long range cruise missiles, and space systems. Taken together, our technological and industrial base, combined with our people, represent the winning edge for peace in future decades. Our ability to develop, test, and deploy advanced technology systems will remain essential to our future security requirements.

The idea that long range planning can create the strategic vision necessary to safeguard our relative advantage into the future is very much alive in the Navy's technology base. Recent studies, including the National Academy of Science's **Navy 21**, the Center for Naval Analyses' **Quo Vadis**, and my Long Range Planning Group's **Long Range Assessment** have provided a significant degree of insight and forward planning. Using these studies as benchmarks of future Navy structure, we are now generating a specific R&D strategy to move in some of the directions indicated by the studies. We have begun to issue guidance to the technology base community and our technology demonstration programs to focus on this strategic vision. In particular, I have restructured the advanced technology development program to provide more focus on the rapid transition of key technologies required for the Navy of the 21st Century.

Given the high level of capital investment associated with all naval forces, we are acutely aware of the critical need for sound, far-reaching decisions on platforms, weapons, and sensors, as well as the basic technology for research and development. As an example, the Navy is moving forward on the concept of integrated electric drive, with its associated cluster of technologies, as the method of propulsion for the next class of surface battle force combatant. This 21st Century development will provide many potential advantages, including a much smaller engineering package, greatly reduced propeller shafts, minimum crew manning, and sufficient power to provide for the operation of the next generation of sensors and weapons.

An essential ingredient in maintaining the Navy's fleet at sea is the need for a high quality, responsive shore establishment. In the FY 90-91 budget, priorities include new construction of housing in some high cost areas and the Trident and strategic homeporting programs. Over the past twenty years, we have reduced the number of our homeports commensurate with ship reductions. Now efficient management of the shore establishment dictates continued support for current homeporting initiatives. Reduced funds available for MILCON in FY 90-91 will necessitate even more stringent management in order to provide the excellent facilities required to maintain our readiness posture, protect our existing investments, and demonstrate our continuing commitment to improving the quality of life for our people and their families.

We have also taken steps to improve the management and effectiveness of our ship depot repair activities. A recently completed Ship Depot Maintenance Study has provided a detailed plan of action to improve our responsiveness in this area. We are exploring significant efficiencies that can be gained through improved management, accounting, training, work practices, and scheduling.

Limited resources for the technology base, research, and exploratory development are the seed corn. In times of famine or drought, there is a great temptation to eat the seed corn -- to satisfy a temporary hunger. We cannot allow that to occur. It must be planted wisely, with great attention to the challenge of providing warfighting capabilities that will permit us to prevail at sea in the dangerous maritime environment of the future.

Priorities for the Future

As I reflect not only on the state of the Navy today, but the probable future security environment as well, my priorities emerge clearly:

o **People** -- Ensuring that in an increasingly competitive market we continue to attract and retain those quality people so necessary to our continuing success, with fair pay raises, efficiently applied bonus payments to critically skilled personnel, reasonable housing allowances, adequate medical benefits, and the creation of an environment in which they and their families are cared for and secure.

o **Balanced Capability** -- Maintaining our relative advantage in ASW warfare remains my top warfighting priority; also continuing to build the right mix of balanced, capable warships and aircraft, maintaining 15 deployable Carrier Battle Groups and introducing the **Arleigh Burke (DDG-51)**, **Seawolf (SSN-21)**, and new carrier-based aircraft like the **Advanced Tactical Aircraft (A-12)**; maintaining our strategic forces with the potent **Trident/D-5** capability; improving our connectivity through robust space and battle management systems; and strengthening our shore establishment, including Naval shipyards and general military construction programs.

o **Future Requirements Capability** -- Developing the systems that will permit us to operate with greater self-sufficiency in an era of dwindling overseas base support and in a wide variety of warfighting environments, including stealth systems, long range cruise missiles, advanced ASW capability, battle management, logistics systems, and close-in defensive measures.

Conclusion

As we prepare to enter the final decade of this century, our national imperative for naval power will expand to meet growing challenges in an increasingly turbulent international security environment. Working together, the Navy, the Administration, and the Congress must act as good stewards of the important and vital investment our nation has made in a capable Navy. As the Secretary of Defense recently remarked, "If we look back at defense spending since 1970, we see a cyclical pattern with peaks and valleys. In the 1970s, defense spending dropped by 15 percent after taking inflation into account. During President Reagan's first term, it rose by 50 percent only then to decline by 11 percent in recent years." Only the Congress, through its ability to ensure modest, stable levels of real growth, is capable of maintaining the naval capabilities we will require in the coming decade.

Our people ask for very little. They willingly deploy throughout the world, enduring six month separations from their families and friends on a routine basis. They do so from a deep sense of commitment and love of country. We must return their commitment and devotion to duty with adequate pay and benefits, providing a secure financial environment for their families. This is a key element in protecting our national investment in a ready Navy. We must likewise provide sufficient funds to maintain a balanced naval capability centered on 15 deployable Carrier Battle Groups, a second critical element in acting as good stewards of our country's investment. Finally, our stewardship requires investment in long term improvements that can be realized through intelligent research and development. If we can work together to provide for our dedicated people, keep our Carrier Battle Groups forward deployed and combat ready today, ensure we can project forces to meet the unified commanders' requirements, and invest in the future, we will have served well our nation's need for a strong Navy.

I am appearing before you to provide a sober, realistic assessment of the State of the Navy today. We are ready to fight. Our ability to continue to sustain this necessarily high level of combat capability and readiness depends on fiscal stability, born of a bipartisan and statesmanlike approach. I am confident that the Congress will join the Administration in protecting our investment, providing the measured real growth that will be required to keep the Navy an efficient, capable instrument of U.S. national policy well into the 21st Century.

Appendix A: Navy Budget for FY 1990-91

[Note: This section reflects final Reagan Budget; will be amended to reflect Bush Administration Budget when finalized.]

We have come to the end of what we can do to trim our budget without causing adverse effects. Today's Navy is lean and tough. The Navy's budget contains minimal growth; funding reductions in crucial accounts will have the effect of cutting muscle, not fat. Looking forward over the two years of the FY 90-91 budget, we must have a stable, positive funding outlook to maintain Navy readiness. At the same time, we must balance our use of national defense resources wisely across the four pillars of the budget: Readiness, Sustainability, Modernization, and Force Structure. I believe our budget submission does achieve an appropriate and effective balance among competing priorities in these categories, while taking advantage of cost saving initiatives and joint/allied mutual procurement efforts.

Few issues are talked about more and understood less than defense spending. A recent survey showed more than half of all Americans believe we spend more than 20 percent of our gross national product on defense. In fact, we spend less than 6 percent. That is well below the levels of the 1950s and 1960s, and far below the 16 percent of GNP spent by the Soviets each year on their defenses. Moreover, U.S. defense spending, as a percent of total government spending, has likewise dropped dramatically. In 1955 it accounted for just over 50 percent of federal spending; today it is just over 25 percent. At the same time, non-defense spending has risen from just under 50 percent in 1955 to just under 75 percent today.

The recent rebuilding of our naval capability has been a procurement success for the Navy. The new, high-technology systems and platforms we brought on line in the 1980s have proved their worth in combat. They came in on or under budget, and worked right the first time. CG-47 Class AEGIS cruisers, FFG-7 Class frigates, Harpoon missiles, the advanced E-2C early warning aircraft, F/A-18 fighter-attack aircraft, recommissioned BB-61 battleships -- to name but a few -- proved themselves in the demanding testing and evaluation environment of the real world, and were evaluated by America's foes in Grenada, Libya, and the Persian Gulf. Our systems are technically efficient, saving money through their manpower improvements: An AEGIS cruiser, for example, requires far less manning than our 1970s vintage cruisers; and the squadron support for the F/A-18 is well below its far less capable predecessor, the A-7.

In addition to the Navy's shipbuilding, conversion, and repair programs, the maritime industry benefits significantly from the Navy sealift operations. For FY 82-89, the Navy will have spent more than $5 billion for charter and contract-operated ships, such as the Maritime Prepositioning Ships, Afloat Prepositioning Ships, Fast Sealift Ships as well as the Ready Reserve Force; another $4.2 billion for shipping agreement contracts for breakbulk and container services and for berth term shipments. Another $2.6 billion will be spent for the procurement of Sealift Enhancement Features and other amphibious equipment and for the operations and maintenance of contingency sealift ships. This adds to a total of approximately $12 billion over the FY 82-89 period for services rendered by the U.S. maritime industry.

The Strategic Sealift contingency programs were initiated by the U.S. Navy as stopgap measures to provide for national security during the decline of the U.S. flag merchant marine assets. These programs are not the final solution, nor the best solution. A healthy and viable U.S. merchant marine capable of meeting the nation's economic and military maritime requirements at all times, but particularly during national emergencies, would clearly be a more desirable solution.

One example of how we have worked hard over the past few years to be good stewards of our national investment is through the "Buy Our Spares Smart" (BOSS) Program. Since its inception in 1983, the program has successfully increased competition, reduced prices paid for spares, and helped break out from sole source procurements. Cost avoidance through these efforts currently totals $1.7 billion, providing a program return on investment of nearly 4 to 1. The Navy Pricing Hotline, one element of the BOSS program, has received over 40,000 reports of potentially overpriced items since 1984, with over 18 percent of the cases resulting in decreased prices.

Competition in procurement has likewise provided significant savings over the past several years. The cost savings from the competitive acquisition process for the successor to the P-3C is estimated to be approximately $650 million. Since the start of true head-to-head competition for the Tomahawk missile in FY 85 through FY 89, the two sources competing have lowered composite unit cost by 46 percent. Prices for Standard missiles were reduced through competition to levels that enabled the purchase of an additional 160 missiles (about two destroyer loadouts). Savings realized through competition on the AO-177 Jumbo Conversion Program enabled us to buy a more capable ship by modifying it to carry ammunition in addition to fuel. All of these savings have been taken into account in preparing the lean 1990-1991 budget.

To ensure the integrity of weapon systems acquisition, we are reflecting a change in this budget in the way we support our program management and execution process by moving effort out of contracted advisory and assistance services and into our organic acquisition commands. We believe that the present level of contract support in these areas represents an unacceptable risk to the integrity of the acquisition process. We must maintain organic resources to perform basic governmental functions, including activities of a policy-making, decision-making, or managerial nature. Our estimates reflect a realignment of funding and additional personnel in FY 89 of 238 end strength, in FY 90 of 737 end strength, and in FY 91 of 744 end strength. We will make this conversion to in-house performance at no net increase in cost.

This 1990-91 budget requests a minimal level of resources required to protect our current balanced capability and invest in future requirements. It requests a Total Obligational Authority of $92.6 billion for FY 90 and $95.4 billion for FY 91. It reflects my three overarching priorities: people, balanced forces, and future capabilities. The budget stresses readiness and sustainability, as it has for the past several years. The breakdown shows that the vast majority of our requested obligational authority is targeted on maintaining readiness. Specifically, the budget is 56 percent for Readiness, 8 percent for Sustainability, 17 percent for Modernization, and 19 percent for Force Structure.

Readiness

Funding for readiness includes the costs of training, operating, and manning naval forces to fight at sea. It covers fuel, maintenance and repair for ships and aircraft, training costs, spare parts and other support items, and most importantly, military personnel costs. It is the day-to-day cost of operating an effective Navy.

As you know, people remain my highest priority. They are the ultimate force multiplier, the source of our true advantage over any potential adversary, and a perishable asset if not carefully watched over. One of the key considerations is the end strength of our Navy. We face substantial manning requirements as we approach the six hundred ship Navy (increasing from 568 ships in FY 89 to 574 in FY 90), and will request a modest increase in enlisted and officer end strength in FY 90-91. Cuts in either enlisted or officer end strength would place an extreme burden on our fleet operating forces, affecting the morale, and ultimately the performance, of our personnel.

Our most serious officer shortages today are in mid-grade aviators (short approximately 1500), nuclear power trained officers (short over 500), and medical designators. Pilot retention is only 29 percent, far below supportable levels. We believe part of the solution will be the Aviation Officer Continuation Pay bonus (to allow us to offset the attraction of the airlines); Nuclear Officer Incentive Pay; and targeted pay increases for our medical department officers.

At the enlisted level, one of the most important retention tools is the Selective Reenlistment Bonus (SRB), which provides payments to highly trained, motivated skilled technicians who "sign on" for six years of additional service. On the average, each dollar invested in SRB offsets two and one half dollars in future training and replacement costs. This is a program that must have stable funding -- we will have to replace 400 highly trained technicians who departed the Navy in FY 88 while uncertainties surrounded the program -- if it is to succeed. SRB remains the most cost-effective people program we have.

In recent years, the Navy has been successful in meeting our overall enlisted recruiting goals and we are optimistic that we will continue to access the numbers that are required to support end strength. However, demographics will pose an increasing challenge for Navy recruiting over the coming decade. With civilian unemployment projected to decline to its lowest level in the history of the all-volunteer force and a 6.3 percent drop in the pool of 17-to-21 year olds 1985-1990, recruiters will be faced with special challenges. Recruit quality and basic education are likewise problems. A recent government report indicated that only 27 percent of young adults could interpret a lengthy feature story in a newspaper -- let alone a complex Navy training text on underwater acoustics. Our problems will be both quantitative and qualitative, and funding in this pillar will assist with both recruiting and remedial training programs that can help solve the new accession problem.

While Congress authorized a 4.1 percent pay raise commencing 1 January 1989, this will only slightly alleviate the continuing disparity between military and civilian pay as measured by the Employment Cost Index. Pay caps from FY 83-88 resulted in a disparity of over 10 percent. The FY 89 pay raise will close the gap slightly. In 1990, even with the proposed 3.6 percent increase, we will lose further ground. History indicates that without reasonable comparability between civilian and military pay, military personnel will leave the Navy, a reflection of the long periods of family separation and arduous working conditions at sea.

There are a host of other worthy programs receiving funding under this pillar. Examples of a few include the Personal Excellence Program, which fosters excellence in education, health, fitness, and citizenship among Navy personnel and young Americans; voluntary education programs; housing allowances; child care; health and physical fitness programs; medical care; and the like. Taking housing costs as an example of the need for these kinds of vital programs, it is worth noting that of the nine most expensive cities in the country for housing, five have large Navy populations -- including Los Angeles-Long Beach, San Diego, Washington D.C., Honolulu, and San Francisco. All these programs are linked to quality-of-life issues which are also a vital part of our recruiting and retention efforts.

Sustainability

Sustainability includes the funds for stocks of weapons and war reserve material that form the measure of our staying power in conflict. These logistic requirements, including the ability to respond to timely demands for fuel, spares, and repair parts, are critical. They have consistently been a high priority of both Navy and unified commanders.

We have steadily invested higher levels of resources in sustainability over the past decade, and weapons stockpiles are finally approaching an acceptable level, with most of the stockpiles currently over 50 percent higher than in 1981, for example.

Our planning objectives for global war are based on the assumption that our forces will have sufficient stocks of surface-to-air missiles, air-to-air missiles, cruise missiles, torpedoes, sonobuoys, gun projectiles, small arms ammunition, and all the other weapons and supplies that ensure we do not put to sea an unprepared Navy.

We must also provide sufficient funds for our total force concept. Over the past seven years, with strong Congressional direction and support, we have increased the size of our Selected Reserve by more than 50 percent. That force now numbers over 150,000 men and women, serving in modern ships and front-line aircraft. In total capability, we have the largest, best equipped and most ready Naval Reserve since World War II.

Five minesweepers and two frigates of the Naval Reserve Force (NRF) were in the Persian Gulf as part of the Joint Task Force Middle East in 1988. The fact that those ships were available and able to deploy on short notice validates our Naval Reserve ship programs. The likelihood that units or personnel of the Naval Reserve will be needed in future contingency operations, including low intensity conflict and drug interdiction, is very high. Our Reserves can dramatically improve the Navy's warfighting capability, and are a proven, efficient, and cost-effective means of maintaining our overall readiness posture. We must ensure appropriate levels of funding are available for the Reserves, and that we are able to use them where and when required in meeting potential contingencies abroad in scenarios short of total mobilization.

We continue to modernize our fleet, notably the sea-based strategic deterrent of the potent Trident/D5 submarine-launched ballistic missile which provides a high degree of accuracy for counter-force attack. The budget for FY 90-91 includes funds for 115 D5 missiles, which continue to have a superb operational test record. The D5 missile will have twice the accuracy of its predecessor, greater warhead yield, and twice the potential throw weight. It will provide an endurable and survivable hard target kill capability at sea.

Modernization

This complex pillar includes all Navy research, development, testing, and evaluation (RDT&E), fleet modernization or ship alterations, and aircraft and weapon modifications. Through use of these funds, we are able to cost-effectively improve current platforms and systems as well as to conduct research and development to identify the most promising avenues for future improvements. Modernization has been growing at a modest level over the past seven years, and is projected to remain stable during FY 90-91.

Our Navy technology base is at the heart of our modernization pillar, and permits us to pursue a program of basic research, exploratory development, advanced technology development testing and evaluation, and ultimate deployment. The highly successful Advanced Technology Demonstration (ATD) initiative is being expanded as the model for efficient transition into development of the most promising and most necessary technologies. In this area, I am concerned that we work hard to improve our future capabilities with regard to anti-submarine warfare, long range cruise missiles, space and battle management systems, close-in defensive weapons, chemical/biological defenses, and stealth.

Modernized approaches to test and evaluate these weapons systems are taking advantage of many technological advancements. Fiscal shortages for upgrading our aging test and evaluation (T&E) facilities are being addressed through increased centralization of planning for T&E resources, intensified application of modern technology to existing resources, and expanded cooperation with T&E counterparts in DoD. Continued awareness of the crucial need to sustain the ongoing modernization of our T&E capabilities commensurate with the technological state of our weapons systems is critical.

Our conventional warships are also benefiting from modernization, including the addition of vertical launch capability in our **Spruance** destroyers, the addition of towed array systems to many frigates, and upgraded hard and softkill AAW systems in many of our surface combatants. Modernization of our surface combatant force will greatly improve our overall sea control capability as these capable warships operate with carriers in both offensive and defensive roles.

Modernization funds will also improve the avionics in the current P-3 **Orion** aircraft, provide better torpedoes to air, surface, and submarine platforms, and integrate surface ASW systems in the SQQ-89 Integrated ASW Combat System.

Cruise missile improvements in both the short range **Harpoon** missile and the longer range **Tomahawk** anti-ship and land-attack weapons are funded from this pillar. Both are critical to the sea control and power projection missions. Advances in the **Tomahawk** support systems are expected to make this versatile weapon even more capable. Funds are included in the DOD budget for the new, longer range **Excalibur** land-attack cruise missile, the next generation of potent offensive punch that will be deployed in surface combatants, submarines, and aircraft.

Using lessons learned from both the Stark and Roberts incidents, we are continuing to improve survivability in all ship classes. Both training and hardware are being modernized in all facets of personnel protection, firefighting, and damage control. One system showing great utility is the Naval Firefighting Thermal Imager, which allows firefighters to pinpoint the flames inside a smoke-filled compartment using infrared signatures.

I am also committed to fielding operating forces who know the ocean, its characteristics and variances, and know how to use that medium more skillfully than our adversary. Our oceanography program therefore continues to grow in capability and is considered healthy and vital today. Yet, we must continue to improve the facilities, equipment, global data, and oceanographic models necessary to make maximum use of oceanographic information that supports fleet operations, ultimately benefiting not only our Navy's combat capability, but benefiting our national environmental situation as well.

In the critical area of anti-submarine warfare, I have worked closely with the Secretary of the Navy to put into motion organizational changes which will provide an improved focus to our efforts in ASW. The position of the Director of ASW Development has been established. This flag officer will serve as program and resource sponsor for all ASW-related exploratory development and selected advanced development activities. He will also act as the principal advisor to the Navy acquisition executive, through the Assistant Secretary of the Navy (Research, Engineering, and Systems), regarding planning and execution of all ASW-related R&D. Assisting the new director of ASW Development will be a centralized Program Manager for Advanced ASW Technology within the Naval Sea Systems Command. This flag officer's responsibilities will encompass overall coordination and integration of all advanced ASW technology developments leading to the rapid fielding of ASW components and systems. These changes, together with continued, careful husbanding and allocation of our resources, will allow us to address the rapidly evolving, quieter, Soviet submarine threat in a more coordinated manner and will centralize and streamline management of the ASW technology base.

Force Structure

Force structure includes the cost of building new ships, procuring aircraft, and converting or reactivating older ships. Difficult choices have been made to formulate the proposal this pillar represents. Consequently, this budget request represents the fusion of our effort to respond to national requirements while taking account of resource constraints. The force structure supported by this pillar of the budget reflects not an unprepared but a "full-up" Navy.

SHIP CONSTRUCTION PROGRAM

NEW CONSTRUCTION	FY90	FY91
Trident (Ballistic Missile Submarine)	1	1
SSN-688 (Attack Submarine)	2	-
SSN-21 (Attack Submarine)	-	2
DDG-51 (Guided Missile Destroyer)	5	5
LSD-41 (CV) (Landing Ship Dock)	1	1
MHC-51 (Coastal Minehunter)	3	3
MCM-1 (Mine Countermeasures Ship)	3	-
TAGOS (Surveillance Ship)	1	-
AOE-6 (Fast Combat Support Ship)	1	1
AGOR/T-AGS (Oceanographic Ship)	3	1
LCAC (Landing Craft Air Cushion)	9	12
CONVERSIONS		
CV (Aircraft Carrier) SLEP	1	-
AO (Oiler) Conversion	1	-

As I have stated for several years, ASW remains my primary warfighting concern -- a direct reflection of the growing Soviet threat, which includes fourth generation nuclear attack submarines like the Akula, far closer in capability to their U.S. counterparts than we have ever encountered. At the other end of the spectrum, many Third World countries are actively seeking increased submarine capability through both diesel and nuclear submarines. We have a strong ASW program which has paced the threat and maintained an overall advantage over even the most advanced enemy systems through the years. To keep ourselves in front, we will need the advanced capability represented by a variety of ASW platforms I will discuss below. Additionally, AAW threats from high-speed, low-flying cruise missiles continue to increase, and the construction of more warships with an AEGIS capability is my top surface combatant priority.

A key element in facing the increasingly modern Soviet Submarine of the next decade is the Seawolf (SSN-21), a state-of-the-art advanced nuclear attack submarine. The Seawolf is indispensable to our ability to control the seas in the 1990s. It will be able to perform missions ranging from land-attack via its Tomahawk/Excalibur missiles to anti-SSBN patrol under the Arctic ice. This superb warship will be exceptionally quiet at a full range of operational speeds, carry the advanced BSY-2 combat system, and take to sea a wide range of modern offensive weapons. It will represent for the next several decades the most advanced and formidable ASW platform technology can provide.

Our Carrier Battle Groups represent the single most important aspect of our sea control capability, from which flows the Navy's ability to perform strategic sealift, power projection, and strategic deterrence. Only the large-deck CV with its own aircraft, operating in conjunction with powerful surface combatants, and associated submarine and land-based maritime patrol support, will be able to provide vital sea control in the 1990s. The only way to maintain sea control where and when necessary is to earn it with carriers at sea operating tactical aircraft. Accordingly, the construction of CVN-74 and CVN-75, as well as the continuing availability of the older CVs, Midway and Coral Sea, is vital.

The unalterable reality is that our carrier forces have become the nation's mobile base structure, employed in areas vital to our interests. A second unalterable reality is that below a certain minimum -- which is 15 deployable CVs -- a totally adequate warfighting force cannot be continuously maintained in every area of the globe where our interests and commitments require and where our land based forces cannot be sustained because of an absence of bases.

As stated earlier, the relationship between CV force levels, overseas commitments, and the amount of time away from homeport is a straight-forward equation. Since deployed CV battle groups are manifestations of vital national interests, we must assume that these overseas requirements for deployed battle groups will remain. Without the required 15 deployable Carrier Battle Groups, the burden on our sailors and our current inventory of ships and aircraft will grow because they will be deployed longer and spend less time in homeport before they have to deploy again.

Our Anti-Air Warfare posture at sea will continue to revolve around the superbly capable AEGIS cruiser and destroyer force. The soon-to-be introduced Arleigh Burke (DDG-51) and the proven Ticonderoga (CG-47) class warships will form the backbone of the surface combatant fleet for the foreseeable future. AEGIS is quite simply the best anti-air warfare system in the world today. It is the only system in the fleet today able to cope with the full range of airborne threats.

The Arleigh Burke (DDG-51) class guided missile destroyer is our top surface shipbuilding priority. Its construction addresses the most serious shortfall in our force structure: AAW capable battle force combatants currently at only 64 percent of goal; indeed, many of our fleet AAW ships are over 25 years old. The Arleigh Burke is by far the most powerful destroyer ever to go to sea and combines the AEGIS AAW and SQQ-89 ASW combat systems with an impressive array of weapons: vertical launch cells carrying SM-2 surface-to-air missiles, Tomahawk anti-ship and land-attack cruise missiles, Harpoon, the rapid-fire, light-weight 5"/54 caliber gun, and close-in weapons for both hard and softkill of enemy cruise missiles. The Arleigh Burke class also features major advancements in survivability, making it the most balanced warship ever constructed. The first ship of this class was funded in FY 85, two more were appropriated in FY 87, and five were appropriated in the FY 89 budget. We are requesting five in FY 90 and five in FY 91. To lead the threat, later ships in the class will incorporate technological advances.

Ballistic missile submarines contribute about 50 percent of the total warheads in the U.S. nuclear strategic arsenal for only 25 percent of the entire strategic budget. Trident submarines incorporate improved quieting, enhanced speed, and excellent defensive weapon system capability in carrying the D5 missile to sea. We continue to upgrade this most survivable leg of the triad in FY 90 and 91 with a request for one Trident in each year.

The Navy's shipbuilding plan also includes funds for two improved Los Angeles class nuclear attack submarines in FY 90, closing out our procurement of this class with a total of 63 purchased. This highly regarded class of submarine has significant capability as an anti-submarine, anti-ship, and land-attack warship, and many of the class are equipped with the vertical launch system for Tomahawk cruise missiles.

As events in the Persian Gulf demonstrated in 1988, the mine remains a significant weapon in naval warfare. To ensure we are fully prepared for contingency minesweeping and minehunting operations throughout the globe, we are requesting six MHC-51 minehunters and three MCM-1 mine countermeasure ships in the FY 90-91 budget.

As the overseas logistic base structure dwindles, the mobile combat logistics force must expand and modernize. We are requesting funds for two additional AOE-6 class fast combat support ships. These support vessels have the highest operating tempo of any ships in the inventory, and are truly vital to our global scope of maritime operations. These ships are floating storehouses, particularly important to the staying power of our forces in the absence of forward bases.

A class of ship that demonstrates the Navy's efficient use of ship construction funds and our ASW priority is the TAGOS class anti-submarine warfare surveillance ship. There are currently 10 TAGOS ships assigned to our Naval Fleet Auxiliary Force. The 224-foot vessels use the surveillance towed array sensor system (SURTASS) to collect and process undersea acoustic data. Manned by civilian personnel, these ships normally go to sea for 70-80 days. The TAGOS is a true procurement success story, and an improved version of this ship has been requested in the FY 90-91 budget.

Underpinning a strong and efficient ASW force is a well-founded understanding of the ocean. To that end, the commitment to replace obsolete ocean survey vessels with modern, multi-purpose oceanographic ships is consistent with our ASW priorities and will support mine, submarine, and surveillance missions as well. There are four oceanographic research ships in the FY 90-91 budget.

Aircraft Procurement

The Navy aircraft procurement appropriation request for FY 90-91 will be used to purchase 192 aircraft in FY 90 and 236 in FY 91.

significantly fewer funds will be requested to undertake the modification of existing aircraft, procure spare parts, and support equipment necessary to effectively use deployed aircraft.

The Navy aircraft procurement plan (APN) is designed to build a force mix of 13 active and 2 reserve air wings, with 24 active and 13 reserve ASW patrol squadrons. Funding for the Marine Corps' aircraft for 3 active and 1 reserve airwing is also included in our request.

AIRCRAFT PROCUREMENT PLAN

AIRCRAFT	FY 1990	FY 1991
A-12*	*	*
EA-6B (Prowler) **	-	3
AV-8B (Harrier)	24	24
F-14D (Tomcat)	18	24
F/A-18 (Hornet)	72	72
CH/MH-53E (Sea Stallion)	3	-
V-22 (Osprey)	12	24
SH-60B (Seahawk)	6	6
SH-60F (CV ASW Helo)	18	18
LRAACA	-	-
E-2C (Hawkeye)	4	9
T-44A	5	-
T-45	24	48

* CLASSIFIED
** REMANUFACTURED

Looking first to the future, we are moving forward on the A-12 Advanced Tactical Aircraft (ATA). Our top Naval aviation priority, it will incorporate significant stealth characteristics and become the primary striking force of our Navy Carrier Battle Groups. This vital tactical air platform will be able to penetrate even the most heavily defended enemy areas to reach its targets. The Air Force has joined us in the development of the A-12 and is defining an ATA variant for Air Force procurement. Similarly, the Navy has joined the development process of the Advanced Tactical Fighter (ATF) and is defining a variant of the ATF for procurement after the turn of the century. This commitment by the Navy and Air Force recognizes the benefits of cross-service utilization of newly developed aircraft.

In the interim, we will continue to operate the long range day/night all-weather A-6 Intruder medium attack bomber, which will be modified under the System/Weapon Improvement Program (**SWIP**) to permit a greater stand-off capability with **HARM**, **HARPOON**, both infrared and laser **MAVERICKs**, and **SLAM** (HARPOON variant).

Complementing the A-6/A-12 medium attack aircraft will be the versatile F/A-18C Hornet, a force multiplier capable of fighter escort, interdiction, fleet air defense, and close air support. The first strike/fighter built by the United States, this aircraft features advanced avionics, low modular maintenance, and cockpit heads-up displays for the single pilot and extraordinary growth potential. Night attack/under-the-weather attack capability will be introduced beginning in FY 90. Over 140 of these versatile aircraft are requested in the FY 90-91 APN Plan.

The new F-14D Tomcat aircraft will be procured in the FY 90-91 budget. Mounting new high performance engines, a state-of-the-art digital radar, and new digital avionics, it will pace the threat and provide outer air battle capability to the Carrier Battle Group. Our current procurement strategy includes buying new aircraft and remanufacturing F-14A aircraft. In FY 90, twelve of these aircraft will be new, the other six are F-14A conversions.

The new V-22 Osprey tilt-rotor aircraft is scheduled to enter pilot production in FY 90, and will combine the best features of both helicopter and fixed wing turboprop aircraft. With a self-deployable range of over 2,000 nautical miles, the V-22 will be used by the Marine Corps as a medium lift assault aircraft.

Procurement of the two variants of the highly successful SH-60 Seahawk helicopter will continue in FY 90-91. The SH-60B will continue to operate as a superb ASW/ASUW asset, while the carrier-based SH-60F, with its dipping sonar, is essential to the inner-zone ASW defenses for the battle group. The dipping helo remains our best inner-zone ASW platform. Both helicopters are capable of sustained operations in high sea states from cruisers, destroyers, and frigates in the battle group.

Advanced funding for the new Long Range Air ASW Capability Aircraft (LRAACA), the follow-on to replace the P-3A/B Orion aircraft reaching the end of their service lives in the mid-1990s, is included in the FY 90-91 budget. LRAACA will provide significantly increased payload, greater range, higher transit speed, and dramatically improved reliability, maintainability, and survivability. Equipped with the Update IV avionics system, LRAACA is our key next generation area air ASW weapon system and is a vital component of our combined arms approach to ASW operations. Procurement is scheduled to commence in FY 92.

The Navy's replacement training system for jet pilot training is proceeding into the production phase. The T-45A Goshawk aircraft, operational instrument flight simulators, and training integration system will be funded in the FY 90-91 budget. We plan to extend the mission of this system to include the training of E-2C and C-2 aircraft pilots and naval flight officers, providing an efficient procurement of assets that will have a significant degree of commonality with the jet pilot training system.

Funding will continue in FY 90-91 for upgrades to the S-3 aircraft. The resultant S-3B Viking features the most advanced airborne acoustic detection/classification system in the fleet today, the APS-137 ISAR imaging radar, and HARPOON missile launch capability. Additionally, the S-3B will be capable of acting as an airborne tanker. Our first operational employment of this aircraft has been very successful. This is another case of a modernization program done right.

Some S-3 aircraft will be reconfigured as ES-3As and will replace the aging EA-3B to perform the carrier based battle group SIGINT support mission. Fleet introduction is scheduled to commence in FY 91, with 16 aircraft available by FY 93.

This APN plan also includes funds for procurement of the AV-8B Harrier, the capable vertical take-off and landing aircraft used by the U.S. Marine Corps for close-air support missions. Additionally, we are requesting a number of E-2C Hawkeye airborne early warning aircraft to maintain sufficient fleet assets of this critical carrier aircraft.

A final thought for force structure: Beyond all the numbers and procurement plans of ships and aircraft stands a simple premise -- the size and structure of today's Navy is a product of detailed analysis by knowledgeable naval officers who will return to sea to live and, if necessary, fight with the weapons systems they have planned, designed, procured, and integrated into the fleet.

GENERAL A. M. GRAY, USMC

Born in Point Pleasant Beach, NJ, General Gray enlisted in the Marine Corps in 1950. He served overseas with FMF, Pacific, attaining the rank of sergeant before being commissioned a second lieutenant in April 1952. Early tours included service with the 11th and 7th Marines, 1st Marine Division in Korea, the 8th Marines, 2d Marine Division at Camp Lejeune, NC, and Headquarters Marine Corps, Washington, DC, during which he saw service in Guantanamo Bay and Vietnam.

As a major, General Gray joined the 12th Marines, 3d Marine Division, Vietnam in October 1965, serving concurrently as regimental communications officer, regimental training officer, and artillery aerial observer. He took command of the Composite Artillery Battalion and U.S. Free World Forces at Gio Linh in April 1967. In September 1967, General Gray was reassigned to the III Marine Amphibious Force in Da Nang where he commanded the 1st Radio Battalion elements throughout I Corps until February 1968. Following a brief tour in the United States, he returned to Vietnam from June to September 1969 in conjunction with surveillance and reconnaissance matters in the I Corps area.

After his Vietnam tour, General Gray served as Commanding Officer of the 1st Battalion, 2d Marines; Battalion Landing Team 1/2; the 2d Marines; the 4th Marines; and Camp Commander of Camp Hansen, Okinawa, Japan. While commanding the 33d Marine Amphibious Unit and Regimental Landing Team-4, and concurrently serving as Deputy Commander, 9th Marine Amphibious Brigade, General Gray directed the Southeast Asia evacuation operations in 1975.

Advanced to Brigadier General in March 1976, General Gray served as Commanding General, Landing Force Training Command, Atlantic, and the 4th Marine Amphibious Brigade. Promoted to Major General in February 1980, he assumed command of the 2d Marine Division, FMF, Atlantic, Camp Lejeune, NC, in June 1981. Following his promotion to Lieutenant General on 29 August 1984, he was reassigned as Commanding General, FMF Atlantic/Commanding General, II MAF, and Commanding General, FMF, Europe. General Gray was promoted to general and became Commandant of the Marine Corps on 1 July 1987.

He is married to the former Jan Goss of Burlington, VT.

THE ANNUAL REPORT OF THE MARINE CORPS
TO CONGRESS
BY GENERAL A. M. GRAY
COMMANDANT OF THE MARINE CORPS

Mr. Chairman, Members of the Committee,

I welcome this opportunity to present my second annual report to Congress and the Nation. Last year I outlined the programs we initiated in order to remain fit and ready for service. I want to share with you the highlights of those institutional changes, make you aware of the issues we face today, and give you our vision of the future.

Past Year

I was entrusted with a Corps built on a strong foundation. No Commandant has ever assumed stewardship of a Marine Corps comprised of better people or equipped with more modern arms and equipment than I. I interpreted my charter as that of building on this solid foundation, seeking ways to refine and strengthen the Corps' capabilities.

Roles & Missions

Over the past year, we've taken a hard look at ourselves and assessed the direction of the Corps. Through his effort, we reaffirmed our roles and missions. We are not only the Nation's most deployable force, but the most employable across the spectrum of conflict. Recent operations in the Persian Gulf and Panama serve as examples of our broad utility and expeditionary capability.

If this Nation faced a crisis today, Marines could go to war tonight without mobilization. We are unique in this respect. The Navy - Marine Corps team has been used in 80% of the incidents involving the United States since World War II. The Naval Service is the force of choice. Your Corps remains prepared for the most likely conflict while maintaining the capability for general war.

Institution Changes

We realized that the maintenance and improvement of our capabilities with respect to future requirements would have to be made by drawing on every available resource from within. We were challenged in this respect by last year's 2,900 man end-strength reduction. The cost to the Nation was three active infantry battalions. We now have 24 active infantry battalions vice the previous 27 infantry battalions. We recognized a window of opportunity which would allow us to make necessary change -- but we had to act quickly. We looked at the lessons learned in previous studies, concepts, and reports, and revisited old techniques that had served us well in the past. We then assembled some of our best and brightest officers, and charged them with identifying the changes needed to make the Corps better. Herein lay our formula for success in institutionalizing change. Our junior leadership generated ideas and identified the basic means to implement them, our senior leadership validated these ideas, and together we committed ourselves to their accomplishment while staying within current resource limits. We avoided the lengthy, bureaucratic staffing process that can so often stifle or kill a worthwhile concept. Within four months of inception, we formally reorganized the Marine Corps Development and Education Command at Quantico into the Marine Corps Combat Development Command, and gave this new organization a much broader charter. It is now designed to have direct interface with our Fleet Marine Forces, thus providing more effective means for meeting the needs of our operating forces. At the Marine Corps Combat Development Command, we are now better able to identify requirements, make changes to organization and doctrine, and improve our warfighting capabilities.

MCCDC

Fewer than three months after a proposal emerged to effect a major reorganization of our research, development, and acquisition (RD&A), we formally activated the Marine Corps Research, Development and Acquisition Command. By consolidating our RD&A efforts, we eliminated bureaucratic layering, and significantly streamlined our procedures. As with our Marine Corps Combat Development Command, we effected these changes with available resources. There have been some rough edges which have needed smoothing as the organizations have evolved. The important point, however, is that they are up and operating--in many ways better and more rapidly than expected.

MCRDAC

As mentioned in last year's report, we embarked on a number of other important initiatives which have essentially dealt with how we fight and train. These initiatives are being implemented, or have already been completed. In line with the "best and brightest" technique already discussed, a study group was formed to determine the direction of the Corps in the emerging national security environment. This group determined that, while the most demanding threat to the free world would continue to be the specter of high-intensity war with the Soviets, the most likely threats to our security interests would be low-to mid-intensity conflicts. They realized that in order to remain this Nation's premier force-in-readiness, the active force must be structured and equipped to react immediately and decisively to these threats without relying on mobilization of reserves. They also concluded that in an era of constrained budgets, the Nation could not afford to maintain large forces which had utility in limited scenarios. Forces which had ready utility across the entire spectrum of conflict provided the greatest savings.

Another study group of officers, taken predominantly from the Fleet Marine Forces, was given 45 days to analyze Fleet Marine Force structure from the bottom up. They developed a plan to strengthen our active structure in order to meet the most likely demands, while retaining within our reserve structure the capabilities needed to "heavy up" for general war. The group proposed in excess of thirty recommendations, which have been, or will be, implemented as our Warfighting

WEI

Enhancement Initiatives. Specifically, these initiatives added more Marines to our infantry battalions, provided scouts to our light armored vehicle battalions to convert them to light armored infantry battalions, transferred the heavy assets needed in general war to the Reserves, and amalgamated our intelligence assets within the Marine Expeditionary Forces. Several initiatives were difficult to implement because manning and resources did not increase in either the last or present year's budget. We did, however, accomplish these changes through significant and, in some cases, painful reallocations of manpower from within our operating forces and supporting establishment. Similarly, other resources have been reprogrammed where possible. Your leaner and more operationally capable Corps cannot sustain further reductions.

Training & Education

We determined that acquisition streamlining and reorganization of our operating forces alone would not result in Marines being thoroughly trained and confident in their equipment. Our training had to change to meet the demands of the security environment, and our Marines had to be able to carry-out the variety of tasks they could expect to face in real-world missions. The modern battlefield subjects all Marines to an enemy threat whether in forward infantry units or in rearward logistic areas. In early 1988, we established the Marine Air-Ground Training and Education Center at Quantico, consolidating training management assets from our Washington headquarters with those in our Education Center. We expanded this new organization's responsibilities to oversee literally all training and education throughout the Marine Corps, and to interface with comparable institutions in the other Services. Beginning from the bottom up, we instituted a program of Marine Battle Skills Training to ensure that every Marine, regardless of specialty, was prepared to do what the Nation expected--fight and win. We are continuing to develop and refine other training and education programs. While new privates are learning their basic combat skills in the Schools of Infantry, officers, staff noncommissioned officers, and noncommissioned officers are polishing their professional knowledge and decision-making abilities through a program of mandated professional military education, war games, and staff exercises. We intend that Marines at every grade will become more proficient in their primary duties as warriors.

Marine Corps Planning

Marine Corps planning has undergone considerable revision and is institutionalizing our vision for the future. Significant effort is being dedicated to charting the direction of the Corps. The Marine Corps Campaign Plan will document the intent of the Corps. It outlines where it is going and why, what it will do, and how it will do it. The Marine Corps Long Range Plan will establish future goals. The Marine Air-Ground Task Force Master Plan will serve as the impetus for all planning and programming efforts. It will be the definitive statement of future Marine Air-Ground Task

Force operational requirements, and will provide implementing measures in the form of doctrine, training, education, and equipment changes needed to attain the necessary capability. By clearly articulating what we will do tomorrow, we can better use our existing assets today.

Current Issues

The greatest issue that the Congress and Marine Corps jointly face is how our forces can best contribute to national security within the constraints of the budget. We have based our request to Congress on analysis of the threat and the role we will play in countering it. Our emphasis is placed on meeting the challenges of the most likely conflict, while remaining prepared for general war. We seek to give the Nation the greatest return on its investment. Our fiscal strategy has been developed to support our operational requirements frequently at the expense of other areas. The FY90/91 Marine Corps budget highlights our emphasis on force structure and resulting end-strength, making it our first priority. We have balanced our total program by slowing down modernization, reducing our support to our fixed plant, and changing the way we train. In pursuing such a strategy, a number of other issues arise which require your attention and support. We make the following issues known to you for these reasons.

Manpower

The Marine Corps is a manpower intensive organization and remains sensitive to force structure reduction. A key issue we face today is the maintenance of a quality force, built as a result of your past support. Our Marines are smarter, more mature, and less prone to disciplinary problems than at any time since the inception of the All Volunteer Force.

Our recruiting continues to provide the input needed to keep your Corps strong. Retention remains high, providing the skills and experience necessary for success on the battlefield. Unauthorized absence and desertion rates are low, which means a larger percentage of our Marines are available for training and deployment. Readiness and morale remain high because of the quality of our Marines. This is the ultimate argument for maintaining our high standards.

We will further improve training and readiness by providing a balanced flow of Marines through our training pipeline, a policy of "level-loading." Despite the near-term costs of level load accession phasing, we are fully committed to this policy for its long term gains. Assigning recruits evenly throughout the year provides a manageable flow through Marine Battle Skills Training. It facilitates planning, and results in efficient use of training assets and school quotas.

Total Force

The Corps is becoming more closely integrated as a Total Force. This integration is important to national strategy, as a constrained budget causes us to rely even more on Reserve components and civilian employees. We have merged our Manpower and Reserve Departments into one organization which will integrate planning and force management. All Marine Corps manpower assets, active and reserve, are now under single leadership. This consolidation of functions has provided for economies of scale, facilitated mobilization planning, and given us an increasingly modern Reserve force.

Marine Corps civilian employees are an integral part of our total force. They consitute 31 percent of our supporting establishment and are even more critical as a result of moving Marines from the supporting establishment to the Fleet Marine Forces. For years, civilians provided critical continuity at our bases, stations, and major headquarters. Our request for 21,659 civilians is the minimum needed to provide adequate support to the Marine Corps. The supporting establishment and our Fleet Marine Forces are presently operating at the limits of their capacity.

Our world-wide commitments require fully combat-capable units. Since end-strength reductions of the past year caused us to cadre three infantry battalions, I am opposed to any more reductions in manpower. We must maintain our end-strength; this is our top priority. If required to cut end-strength, we will maintain our Marine air-ground-logistics integrity, but we will cut vertically rather than horizontally. We will continue to provide the Nation combat ready units; end-strength reductions will only result in fewer of them.

Quality of Life

Quality of life is important to retain the high caliber of young men and women we spend so much time to recruit and train. It has a direct effect on readiness. Our ability to provide services in this respect is being challenged by the fact that over the last three years, the number of dependents has surpassed the number of active duty Marines. We have taken measures to alleviate the pressure being placed on services we provide. As an example, we are realigning units within the Southern California area. The 7th Marine Regiment and its associated combat support units are being relocated from Marine Corps Base Camp Pendleton, California where a shortfall in facilities exists, to Marine Corps Base 29 Palms, California which has sufficient facilities. These efforts are only a partial solution to the problem of supporting the growing number of dependents. Some aspects of support are beyond our capabilities.

Medical Care

As I mentioned last year, the adequacy of medical care for our Marines and their families is of continuous concern to me and to the Secretary of the Navy. There are inadequate numbers of doctors, nurses, and corpsmen. Significant delays occur in the receipt of CHAMPUS payments. Some medical practitioners no longer accept CHAMPUS for this reason. I again ask Congress to correct this critical deficiency.

Cost of Living

The high cost of living in certain areas is having an impact on the quality of life of our enlisted Marine families. In many areas, both spouses must work to meet the minimum requirements for food, clothing, and shelter. Unlike the private sector, the employment of a Marine's spouse can bring unique problems in Service life which is occasioned by family separation and instability resulting from frequent moves.

Intra Familial Relations

The pressure and the stress of Service life can manifest themselves in a variety of ways. Its worst form is family violence. All sources of family stress are of personal interest to me. This issue impacts readiness. In August of this past year, a general officers' task force was convened to examine family stress. The subject also received considerable attention in our general officers' symposium. The results of the study and the responses of general officers are currently being evaluated by my staff.

We are placing the greatest emphasis on Family Service Centers and child development centers. In FY88, over 250,000 contacts were made with Family Service Centers - a 400 percent increase since FY83. However, the ceiling on appropriated fund support to Morale, Welfare and Recreation activities inhibits providing affordable child care at an affordable cost to our Marines.

MWR

In other Morale, Welfare and Recreation (MWR) activities, we are continuing to make other significant improvements. Following congressional direction, we consolidated these activities under single management for the dual purposes of reducing administrative costs and, more importantly, seeking out innovative business ventures that our patrons would support. We have consolidated our Morale, Welfare and Recreation and Marine Corps exchange staffs into a single agency responsible for executing their programs. This effort has resulted in a more effective use of limited resources and complies with Congressional guidance. Above all, Marines are the real benefactors of this program.

Aviator Rentention

Another issue of concern is the potential reduction in the retention of Marine aviators. So far, we have been able to keep the numbers we need. Whether we will be able to continue to retain enough pilots in the future is questionable considering the potential impacts of aggressive airline hiring, and the fact that Aviation Career Incentive Pay (flight pay) has not changed since 1981. The extent of this concern has been documented in the recent DoD Aviator Retention Study.

Legislative Proposals

The last manpower issues I want to address are two separate initiatives which seek relief with regards to DOPMA requirements. Since the enactment of DOPMA, the Marine Corps has realized higher retention rates when compared with pre-DOPMA rates. The result of this high retention has been a steady climb in the average time to promotion and an aging of the officer corps. We are drafting a legislative proposal which requests that officers in the grade of lieutenant colonel through major general be allowed to retire after two years in grade vice three years. To maintain a youthful, vigorous, fully combat-ready officer Corps, we have lowered the officer promotion opportunities between five and ten percent. Projections for timely promotions in the future can be achieved with this promotion policy and the approval of our recommended legislation. Our second problem is the long standing difficulty the Marine Corps has experienced with DOPMA officer grade ceilings, especially in the grade of major. The current ceilings obstruct our ability to shape and manage our officer corps. We are reviewing its requirements determination process through an Officer Force Management Review Panel, and may seek legislative relief to amend our grade tables.

O&M

In real terms, Operation and Maintenance, Marine Corps funding decreased 9% from FY89 to FY90, and funding in this area for FY91 is essentially level with FY90. It is not possible to reduce funding by such a magnitude without making some hard choices. We have to reduce programs; however, we have tried to make these reductions with the least effect on readiness. On a percentage basis, the largest impact is on operating forces. This major reduction has occurred partially because this area was not affected as much as other programs in previous years. We are emphasizing less costly but equally effective training techniques. We are increasing individual and small unit training, conducting fewer large scale exercises, and training closer to home. We have not compromised on those aspects of operations and maintenance such as Battle Skills Training which are fundamental to our readiness. We have increased the funding for specialized skills training. We have ensured that those areas that affect our equipment maintenance receive the emphasis necessary to maintain our overall readiness. The resources needed to maintain the high quality recruits have been allocated as well. To do these things, we have had to accept some trade-offs. The maintenance of our real property, such as roads, facilities, and ranges, has been reduced. With our changes in training, we have been able to reduce our requirements for transportation and supply support. These reductions can be sustained over a short-term period without a negative impact. However, over the long term, continued reductions to our logistics functions will limit what we can do in our day-to-day operations. The operation and maintenance appropriation is a major factor in promoting the quality of life for Marines and their dependents. It provides for the training, operation, and support of our base activities. Before leaving operation and maintenance, I would like to reemphasize that we did not cut this funding across the board. We shifted our efforts towards such programs as battle skills training. At the same time, we are protecting the quality of life programs that are necessary to our Marines and their dependents.

With regard to Procurement, Marine Corps, we have experienced 9 percent negative growth over the last year. We have little flexibility left, due to the purchase of the M1A1 tank which comprises such a large percentage of this appropriation. The flexibility that we do have in procurement is being used to maintain current capabilities.

Aviation

Our progress within aviation is important to note. First, this past year has been the safest in the history of Marine Corps aviation. Second, we are pursuing those programs which will take us into the 21st century. The MV-22 program is the *most important* advance in military aviation since the helicopter. It is my *number one* aviation priority. The MV-22 Osprey tilt-rotor aircraft, with its tactical mobility and strategic deployment enhancements, will provide a decisive advantage in over-the-horizon operations. It flies twice as fast, twice as far and is many times more survivable than the 25 year old CH-46 helicopter it replaces.

The application of tilt-rotor technology has the potential for revolutionizing commercial aviation. The first MV-22 has been built but has not yet flown. Engineers are currently proceeding through a series of meticulous preflight tests prior to the first launch. During this preflight testing, some problems have surfaced with integrating the new technologies found in the aircraft. None of these problems is individually serious, but each must be solved to total satisfication before the first flight will be permitted. The Osprey's first flight will occur when all systems are ready. We will not fly or field an aircraft which is not safe or fully combat capable. The procurement of the F/A-18 continues and the AV-8B Harrier II program is on track as well. The AV-8B multiyear purchase saves 128 million dollars and will bring us to a procurement level of 276. Beginning in late 1989, all production AV-8Bs will be equipped with night-attack features including a forward-looking infrared sensor, a color digital moving map, and night vision goggles for the pilot. Simply put, the AV-8B is *the best* close air support airplane in the world. Your provision of 46 million dollars in FY-89 as advance multiyear procurement funding for three more years of 14 CH/MH-53E aircraft which was planned to allow us to meet our procurement objective, is greatly appreciated. Unfortunately, FY-90/91 fiscal constraints did not allow us to keep these aircraft programmed. We have, however, managed to work in enough funds to keep the line open for one more year. This is vitally important, as no plan for another heavy-lift helicopter exists.

In the case of our AH-1W Cobra, our last buy was in FY-88 and provides the active force with six squadrons, with 12 aircraft in each. In FY-89 the production line will remain open to complete the AH-1T to AH-1W conversions. Unfortunately, FY-90/91 budget constraints did not allow programming of funds to replace our Vietnam era AH-1Js in our Reserves before the production line goes cold.

The Navy and the Marine Corps appreciate the Congressional support for the procurement of Navy programs critical to the mission of the Marine Corps, particularily the landing craft, air cushion (LCAC). The multiyear buy results in considerable savings for the taxpayer. The LCAC is already paying dividends in our operations in the Pacific and Mediterranean. Even more important, is the role it will play in the future. The LCAC remains essential to the development of the over-the-horizon amphibious assault.

Amphibious Shipping

Amphibious shipping is of great concern. Since World War I, we have had a real requirement to lift the assault echelon of Marine Expeditionary Force in the Atlantic and Pacific, simultaneously. For affordability reasons, however, we have agreed to accept a goal of amphibious lift for only the assault echelons of a Marine Expeditionary Force and a Marine Expeditionary Brigade. Despite this compromise, a shortfall still exists. Simply stated we do not have enough shipping to meet operational requirements. Of great concern is the block obsolescence we face between the years 2000-2008. During this period, 47 of our current 63 amphibious ships will reach the end of their normal 35 year service life. While the construction of the WASP-class amphibious assault ship, multipurpose (LHD-1) and the WHIDBEY ISLAND-class landing ship dock (LSD-41), will enable us to attain our programmatic goal near the turn of the century, it will not be enough to sustain us beyond the next decade. In a world in which the ability to base our forces overseas is declining, our ability to project power and conduct seabased operations by means of amphibious shipping is critical to a forward-deployed strategy. The overall negative trend in amphibious shipping must be reversed. Your support for the timely construction of amphibious shipping in the budget request is crucial.

R&D

A major portion of our efforts in research and development are in programs which will enhance over-the-horizon assault.

Our first priority is the advanced assault amphibian (AAA) which will replace our current amphibious assault vehicle, now approaching the end of its extended service life. Our requirement is for a craft which will achieve speed needed to close on the beach from positions over-the-horizon, in a matter of minutes. Such a capability can be accomplished by taking advantage of mature technology-base developments in lightweight, composite materials, advance power, and propulsion engines.

We need to upgrade the firepower and tactical mobility of our forces. Numerous studies have verified the need for a light weight, highly mobile, direct-fire capability in our light armored infantry (LAI) battalions. An assault gun on our existing light armored vehicle will add firepower to tactical mobility. We are exploring the feasibility of various gun systems to provide the optimal firepower compatible with our mobility requirements. We need an LAV/AG, and will select a system only if it meets our stated requirements.

Future

The decisions we make today must be viewed in the context of our vision of the future. I do not see our national interests nor the fundamentals of national military strategy changing. Our strategy should continue to be based on three basic tenets: deterrence, forward-defense, and coalition defense. As we closely examine our ability to deal with the prospective imbalance between commitments and capabilities in the near-future, we cannot prudently eliminate or significantly modify any of these supporting tenets without incurring unacceptable additional risk. We need to significantly broaden our strategic focus to better balance our alliance commitments with the need to protect our unilateral interests worldwide. I continue to believe that our most effective deterrent is our ability to respond rapidly to any threat across the spectrum of conflict with an appropriate and measured response.

A belief exists that the threat of general war is abating. If it is, so much the better. But, no matter what happens tomorrow, this Nation's greatest strategic advantage lies in its ability to control the seas. We must have forces that are capable of moving and maneuvering on the seas for the ultimate purpose of influencing actions on a foreign shore; forces that are flexibly structured, self-sustaining, and of utility not just in a single scenario or level of intensity, but across the entire spectrum of conflict. The conflicts and unexpected threats which have been posed to our interests in distant regions of the world over the life span of our Nation continues to argue for such an expeditionary force capable of rapid response. For this reason the Marine Corps as an element of our national seapower remains forward-leaning and forward-deployed, prepared for instant employment when required. It is imperative that we maintain such a combat-ready force for whatever tasks may be at hand. We will not have this if the Corps is driven to force structure reductions. In the Seventies, we went through a similar period of austerity in which readiness and combat force structure were reduced. We remember painfully how reduced military capability limited our ability to respond to crises and achieve our national objectives.

Your Marine Corps is more combat ready today than it was at the time of my last report. It will continue to improve. We have pursued efficiency, but not at the cost of effectiveness. The ability of our operating forces to fight has been enhanced and our supporting establishment has been streamlined. Our focus is on readiness. We are leaner, more mobile, and more expeditionary. If asked, we could go to war tonight. Despite changes, one constant remains: our objective is to fight and win on any battlefield. We remain prepared to do whatever has to be done to protect national interests throughout the world. And just as I have promised you in the past, in the demanding times ahead, we'll take what you give us, do what's required - and more.

Our requests for FY90/91 are as follows:

($ MILLIONS)

Appropriation Table	FY89	FY90	FY91
Military Personnel Marine Corps	$5719.2	$5818.9	$5984.1
Reserve Personnel Marine Corps	315.1	319.2	337.7
Operation and Maintenance Marine Corps	1855.8	1745.1	1802.5
Operation and Maintenance Marine Corps Reserve	77.6	77.4	79.4
Procurement Marine Corps	1291.8	1207.6	1415.3
Family Housing Marine Corps Allocation	157.3	122.9	127.2
Military Construction: Marine Corps Projects	275.8	172.4	164.8
Military Construction: Marine Corps Reserve Project	4.7	10.6	8.9

($ MILLIONS) Appropriation Table	FY89	FY90	FY91
Stock Fund Marine Corps	32.8	20.8	26.6
Total	$9730.1	$9494.9	$9946.5

United States Marine Corps

Concepts and Issues

1989

Concepts and Issues

February 1989

The Corps Today – Preparing for the 21st Century

Concepts and Issues is a document that serves several audiences both internal and external to the Marine Corps. It details the legislated and traditional roles of the Marine Corps; its distinct expeditionary orientation and force structure; and its usefulness and flexibility across the entire range of anticipated threats facing the Nation. We remain committed to providing our country with an unparalleled expeditionary capability based on the most cost effective military organization possible.

The Marine Corps continues to seek out opportunities to provide the country with the right options and assets for the projected security challenges facing our country as we enter a new decade and look forward to the next century. Internal reorganization and refocusing certain training, education, and modernization programs are part of this continuing endeavor. **Concepts and Issues** details our major efforts and programs in this regard. Program summaries and procurement profiles reflect the FY-90/91 Presidential Budget submitted to the Congress.

The international security picture, as well as our domestic budget resources, remain subject to some uncertainty. Despite this, we will ensure that the Marine Corps' contribution to the Nation are formidable forces, ready in an instant, to overcome the myriad threats to those values held dear. Our versatility, sea-based flexibility, and rapid responsiveness are imperatives for the changing strategic environment. Our primary focus in all our endeavors is providing this country with the most versatile, disciplined fighting force in the world.

A. M. GRAY
GENERAL, U.S. MARINE CORPS
COMMANDANT OF THE MARINE CORPS

Table of Contents

Chapters

I The Corps Today – Preparing for the 21st Century 1-1

II Resources Allocation Summary 2-1

III Programs for Improved Marine Air-Ground Task Force (MAGTF) Capabilities 3-1

IV C4 and Intelligence 4-1

V Manpower and Reserve Affairs 5-1

VI Training 6-1

VII Naval Support and Programs 7-1

Appendices

A Glossary

B Distribution

Published by Headquarters, Marine Corps
Requirements and Programs Division
Washington, D.C. 20380-0001

Chapter I

The Corps Today – Preparing for the 21st Century

Nothing endures but change. A Greek philosopher noted over two thousand years ago that nothing is permanent except change. The Marine Corps is an excellent example of this axiom. As a result of internal and external forces, the Marine Corps is continuously adapting to meet new challenges created by changes in the international security environment and the defense resource situation.

While the Corps has made many major innovations and changes, one vital ingredient remains constant. Namely, the Marine Corps is prepared today to respond immediately to the Nation's call, **whenever** and **wherever** needed. Various sized Marine Air-Ground Task Forces (MAGTFs) are available to a Unified Commander overnight without having to recall any of our Reserve forces.

The Corps has retained its distinct expeditionary orientation and force structure, as well as its usefulness across the entire range of anticipated threats facing our security. This expeditionary capability is an essential element of American defense strategy because ready forces cannot be based everywhere in the world. By contrast, expeditionary forces can be introduced swiftly and withdrawn; they are independent of base or overflight rights; and they provide the National Command Authorities with a wide range of options during crises. This requirement for a responsive expeditionary capability was once again validated by a Presidential Commission in a report titled **Discriminate Deterrence** which endorsed "versatile, mobile forces, minimally dependent on overseas bases, that can deliver precisely controlled strikes against distant military targets" as the force of choice for protecting U.S. national security interests.

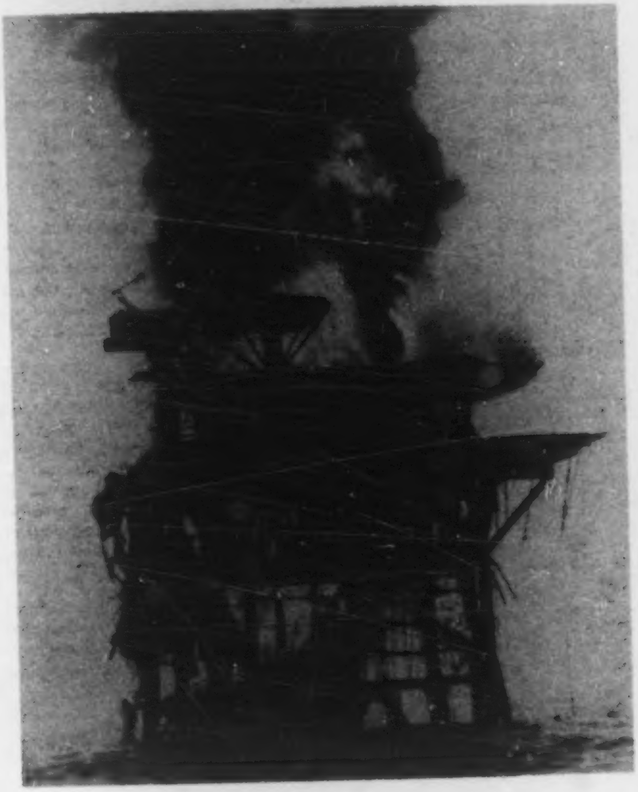
Overview of the National Security Environment

There are several emerging trends which will profoundly affect the current and future security environment. The most significant threat remains the global challenge posed by the Soviet Union. Despite the apparent reforms that the Soviet Union has undertaken, their military power continues to aggressively challenge our vital interests throughout the world. Although the Soviet Union poses the primary security threat, we also face a diversity of other serious security challenges: regional and low-intensity conflicts; nuclear proliferation; international terrorism; drug trafficking; radical politico-religious movements; and problems of instability and economic development in countries that are important friends and allies.

Adversely affecting the ability of the United States to assist in the maintenance of regional stability is our diminishing access to foreign bases and overflight rights. Recent negotiations to maintain bases and facilities overseas have highlighted the potential erosion of alternatives for forward basing U.S. military forces. This gives further credence to the argument that our Nation will increasingly rely upon naval forces to deter aggression and provide for regional stability. Our recent experiences in the Persian Gulf reinforce this argument.

Another major trend of this period is the diffusion of economic power and advanced technology to the Third World. A broad shift in the world balance of economic strength and technological growth is rapidly emerging. This combination of economic growth and technological maturation has already provided several countries with an independent ability to produce advanced weapons systems, both for their own use and for export. The arsenals at the disposal of these countries can include hi-tech "smart" munitions, as well as chemical weapons.

It seems evident that, through the turn of the century and beyond, U.S. national interests in the developing areas of the world will remain and could conceivably grow. It appears equally evident that profound changes will occur in the Third World in the next two decades as a result of swings in economic power, demographics, and the proliferation of advanced weaponry.



Potential involvement in the low-to-mid-intensity conflict range in the Third World requires that the U.S. develop appropriate forces and doctrine. The Presidential Commission for an Integrated Long-Term Strategy made a similar recommendation. Their report states that DoD "must give preference to more mobile and versatile forces — forces that can deter aggression by their ability to respond rapidly and discriminately to a wide range of attacks." Naval forces are particularly well-suited for such roles because of their worldwide reach and strategic mobility, their ability to deploy without transgressing the airspace or territory of sovereign states, and their ability to sustain themselves.

Sea Power as a Constant in National Security Strategy

While the global environment has been subject to change, sea power is projected to remain an enduring constant in our national security strategy. The U.S. has always recognized the need for sea power. Unimpeded access to the oceans and sea lanes has been a long-standing requirement for the economic health and security of our Nation for over two centuries. In the 21st century, maritime power will continue to be critical for the defense of North America, for the support of our allies and friends, and for the protection of the sea lanes that are our economic lifeblood. Growing trends in the global security environment, discussed previously, will only enhance the importance of sea power.

The future will also place a premium on forces capable of adapting to uncertain geopolitical and economic situations. Multi-mission capable forces, flexibly sized to the mission, possessing the characteristics of speed and mobility have the highest probability of future employment. Changes in the international security environs necessitate that we be prepared for challenges across the conflict spectrum, but particularly in the low-to-mid-intensity range.

The Marine Corps provides such forces. The ability to task organize an integrated air-ground-logistics force appropriate to the situation, its intensity, and its duration is a nearly unique quality of the U.S. Marines and our partners on the sea, the U.S. Navy. Such a maritime force will be responsive and unencumbered by requirements for basing or overflight rights, while inherently capable of providing its own essential logistical support.

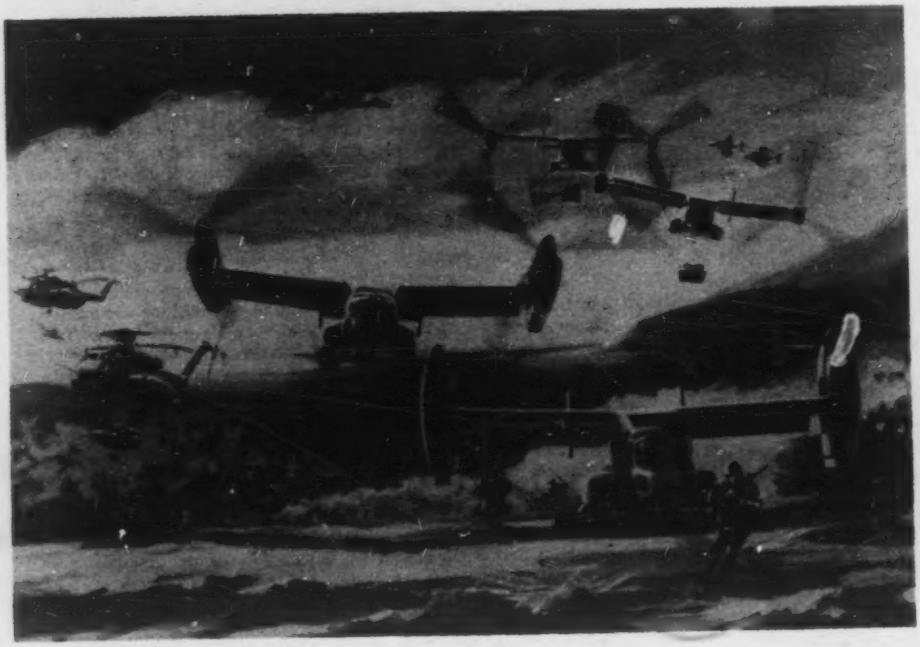
For the past 8 years the American people have been investing in maritime superiority. The Navy-Marine Corps team has adapted for the future by planning, training, and modernizing to enhance its ability to bring force to bear where needed, as needed, and when needed. Continued investment in sea-based forces is appropriate given the geographic, political and technological realities facing us. Maintaining flexible, sea-based, expeditionary forces puts us on the best possible footing for the coming challenges of the 21st century. Maritime power, in the form of our carrier task forces and naval expeditionary forces, will continue to be the most respected, most responsive, most flexible, and most prepared force that is capable of reacting immediately to the entire spectrum of conflict short of nuclear engagement. The deterrent value of such a force is significant. As the world political and economic picture evolves, the capability of projecting naval expeditionary forces over great distances and keeping them there stands as one of our greatest assets.

Evolutionary Development

In an era of rising costs and competition for resources, the Marine Corps must prudently spend its portion of the defense budget. Prudent spending means providing a necessary and unique force today, while ensuring adaptive flexibility for future challenges. The Marine Corps has a long and distinguished history of adaptation in the face of geopolitical and technological change.

The Marine Corps' contribution to national security has evolved throughout the history of the United States by virtue of the ability of Marines to identify and adapt to the Nation's strategic and tactical needs, sometimes before these needs were realized or commonly accepted.

In World War I, the Marines were part of an expeditionary force sent to Europe. Later, when events pointed to war in the Pacific, Marines developed the warfare concepts and techniques that were the foundation for our amphibious victories in World War II. That doctrine, constantly refined over the years, and associated Marine Corps developments in close air support and fire support coordination are currently in use by all Services. Following the advent of nuclear weapons, Marines identified the need for dispersed landings and adopted the helicopter to carry them out. These vertical assault and helicopter-borne tactics have been adopted and built on by all the major armies of the world.



This evolutionary trend continues today as the Corps develops and fields Vertical/Short Take-Off and Landing (V/STOL) aircraft like the AV-8B Harrier, the revolutionary tilt-rotor technology behind the MV-22A Osprey, and the emerging high-speed characteristics of the Advanced Assault Amphibious Vehicle.

Today and in the future, the Marine Corps must be viewed in the context of the evolving world scene. Technological innovation must be used whenever feasible to apply competitive strategies that maximize our leverage and deterrence against future antagonists. Adaptation must always be predicated on the strategic needs of the Nation.

Mission, Functions and Organization of the Corps

The Marine Corps is unique among the armed services because its force structure is detailed by law in Title 10, U.S. Code which legislates that the Marine Corps will consist of and shall provide these key defense elements:

- Three combat divisions, three air wings and such other land combat, aviation, and other services . . . organized, trained and equipped to provide Fleet Marine Forces of combined arms . . . for the seizure or defense of advanced naval bases and the conduct of land operations in support of a naval campaign.
- Detachments and organizations for service on armed vessels of the Navy as well as security detachments for the protection of naval property at naval stations and bases.
- Marines to perform such other duties as the President may direct.

Inherent in these tasks is the requirement that the Marine Corps provide rapidly deployable forces for contingency missions in support of the national strategy. The requirement to deploy forces rapidly has resulted in active and reserve components that provide a balance between strategic mobility and tactical capability. The Marine Corps' primary mission is to provide Fleet Marine Forces (FMFs) of **combined arms**, including integrated aviation and logistical components, for service with the U.S. Navy fleet as part of a naval **expeditionary** force. This mission is consistent with the United States' position as a maritime nation with worldwide interests. It supports a national strategy that is global in nature with assets that are equally global and responsive. These two dimensions, the expeditionary focus and the combined arms concept, make the Marine Corps the most unique fighting organization in the world.

Expeditionary Force Characteristics

The term "expeditionary" refers to an armed force organized to accomplish a specific objective in a foreign country. The term implies the capability to move, on short notice, to a distant location. This force must be properly structured and equipped to fit on available transport, by air or by sea. The force must be of sufficient combat power and logistic sustainability to accomplish what it is tasked to do. It should accomplish both the transit to the destination and the military mission with little, if any, dependence on outside assistance. A force that shares the same doctrine and operational techniques will satisfy this expeditionary criteria. This holds true particularly for a force that is capable of effective command and control in an operational environment due to its various elements routinely training and exercising together as a single, fully-integrated entity.

A force which has the capability to make a forcible entry into an objective area being denied by opposing military force is ideally suited for expeditionary missions. A truly expeditionary force should not have to rely on others to permit transit through their airspace to accomplish the mission, nor can it rely upon the support of some other country for port facilities, airport services and aircraft control assistance, or logistic support. Using these criteria, the Marine Corps with its long standing amphibious characteristics can be thought of as this country's premier expeditionary force-in-readiness.

The MAGTF Concept

The Marine Corps organization for combat is based on the unique structure of our warfighting forces in the FMF. Based on the combined-arms concept, Marine Corps doctrine provides that FMFs will be employed as integrated Marine Air-Ground Task Forces (MAGTFs). The MAGTFs are tailored, i.e., task organized, to accomplish specific missions. This tailored force exploits the combat power inherent in closely integrated air and ground operations. The central operational concept for employing a MAGTF is that it is most effective in battle when employed as a strategically mobile, combined-arms, air-ground-logistics combat force all under a single commander. This commander must have the necessary command and control assets to direct this force. Organized and employed in this manner, Marine forces fight according to the Marine Corps' basic combat doctrine which incorporates maneuver warfare concepts.

MAGTF Organizations

The Marine Corps has developed a range of different sized MAGTFs that can be deployed to any part of the world on short notice. Regardless of the size of the MAGTF, it will include four major components:

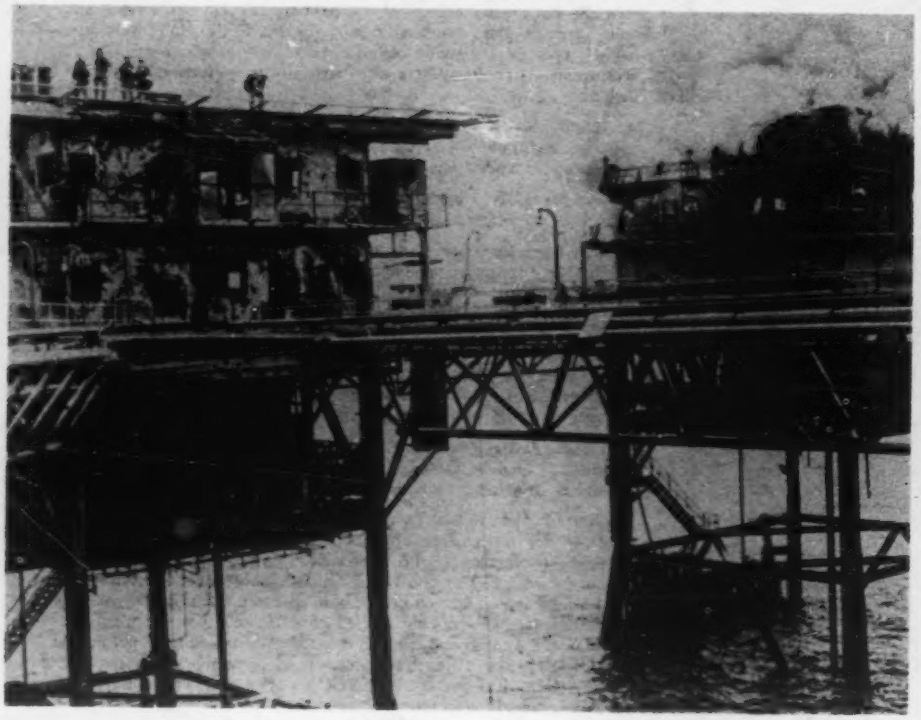
- Command Element (CE)
- Ground Combat Element (GCE)
- Aviation Combat Element (ACE)
- Combat Service Support Element (CSSE) (including Naval Support Element [NSE])

Within this general structure, there are three basic types of MAGTFs that may be formed in response to operational requirements:

- **Marine Expeditionary Force (MEF).** A MEF is the largest (50,000 Marines and Sailors) and most powerful of the MAGTFs. It may range in size from less than one to multiple infantry divisions and aircraft wings, together with an appropriate combat service support organization. It is capable of conducting a wide range of expeditionary operations and, with its 60 days of support, sustained operations ashore. The MEF can be tailored for a wide variety of combat missions including full-scale amphibious assaults in any geographic environment.

- **Marine Expeditionary Brigade (MEB).** The MEB, with 8,000 – 18,000 Marines and Sailors, is normally built around a reinforced infantry regiment and a composite Marine aircraft group. It is commanded by a general officer and is capable of amphibious assaults and subsequent operations ashore. During crises situations, a MEB may be forward deployed afloat for an extended period to provide rapid response. With 30 days of sustainability, the MEB may be supported from its sea base, facilities ashore or a combination of both. MEBs have the capability to serve as the forward element of a deploying MEF.

- **Marine Expeditionary Unit (MEU) Special Operations Capable (SOC).** The MEU (SOC) is the smallest air-ground task force (1,800-4,000 Marines and Sailors) and is normally built around a reinforced infantry battalion and a composite helicopter squadron. It is commanded by a colonel and employed to fulfill routine forward afloat deployments. The MEU (SOC) provides an immediate reaction capability for operations of relatively short duration. Because of its limited size, combat power, and sea-based sustainability, it will not routinely conduct amphibious assaults, but may be considered the forward element of a larger MAGTF.



A special purpose, contingency MAGTF finished the destruction of these Iranian oil platforms during Operation PRAYING MANTIS in April, 1988 in retaliation for Iran's mining of the Persian Gulf.

The MEU(SOC) is a task organized, forward-deployed MAGTF. It is a contingency force normally embarked aboard three to five amphibious ships. It is task-organized for the accomplishment of selected mission requirements. The MEU(SOC) is structured, trained and positioned for the specific purpose of providing the fleet commander with a force capable of timely response to a wide variety of contingencies.

It is not a special operations force by definition, nor does the Marine Corps provide forces with the primary mission of conducting special operations. The MEU(SOC), by enhanced training and additional equipment, achieves the capability to accomplish selective maritime special operations.

MEU(SOC)s are routinely deployed in the Mediterranean Sea and Pacific Ocean. They are designated MEU(SOC) only when the units have demonstrated specific capabilities at the end of the pre-deployment training cycle in a very demanding Special Operations Capable Exercise (SOCEX) that focuses primarily on rapid planning and execution of amphibious raids. The general mission of the MEU(SOC) is to provide an immediate response capability across a wide spectrum of crisis contingencies by conducting a wide variety of operational missions to include:

Amphibious Raids. The ability to conduct an amphibious raid on short notice, at night, under emergency conditions via helicopter and/or surface means from extended ranges.

Show-of-Force-Operations to demonstrate the willingness of the U.S. to protect its interests and political resolve.

Security Operations are conducted in a foreign environment to protect U.S. property and non-combatants, maintain a local security perimeter, and provide personal protection to designated individuals.

Mobile Training Teams provide training and education to non-U.S. units concerning weapons, equipment, and basic combat skills.

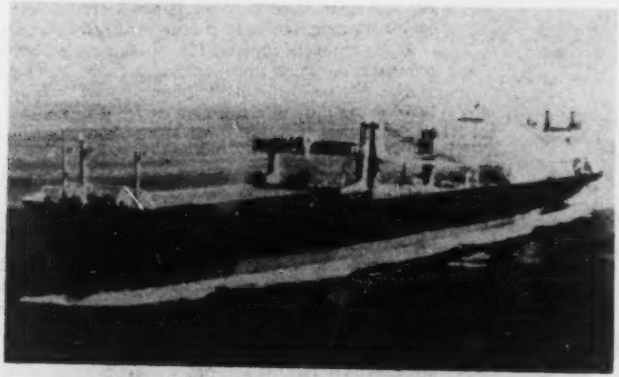
Civic Action Operations to include medical and dental care, limited engineering and minor construction repair of civilian facilities are provided upon request after natural disasters.

In-Extremis Hostage Rescue. The MEU must be able, in an **in-extremis** situation, to conduct a hostage rescue mission, at night, under emergency conditions, at extended ranges.

The overall objective is to ensure that the MEUs continually deployed with the fleets are fully capable of conducting special operations by themselves, or in conjunction with other special purpose organizations if the situation demands. This is not a new or unique effort. It merely refocuses our training and equipment priorities to ensure that our forward-deployed units are completely capable of fulfilling a demanding range of maritime operations in a rapid and credible manner. This capability is not limited to MEU-sized units. Through a building block approach we are capable of having several SOC-qualified MAGTFs task-organized into a MEB or MEF-sized force when the situation dictates.

Prepositioning

Another significant MAGTF capability is our maritime and geographic prepositioning programs. The Maritime Prepositioning Forces (MPF) concept is a major leap forward in strategic mobility. It provides Marine expeditionary forces, assigned to the Unified CinCs, a new dimension in mobility, readiness, and global responsiveness. The Maritime Prepositioning Ships (MPS) program involves a total of 13 ships, organized in three squadrons. The first squadron (MPS-1) deployed in 1984, and operates in the Eastern Atlantic. MPS-2 deployed to Diego Garcia during December, 1985. The final squadron, MPS-3, was activiated and deployed to the Western Pacific in 1986.



MPS operations reduce Marine deployment response time by prepositioning the bulk of the equipment for a MEB aboard specially designed ships in strategic locations throughout the world. Each MPS squadron is loaded with tanks, artillery, vehicles, supplies, food, fuel and water to support a 16,500-man brigade for up to 30 days. An MPF MEB can be quickly airlifted from the United States to an objective area to marry-up with its prepositioned equipment at a secure site. Having this equipment already embarked aboard ship and forward-deployed during crises greatly increases the response time of our MEBs. Another program that enhances responsiveness is the geographic or Norway prepositioning program. This program also provides the supplies and equipment for a Marine airlifted MEB. This materiel is stored in protected sites in Norway. Like the maritime prepositioning program, the Norway air-landed MEB enhances both responsiveness and flexibility. The program supports our commitments to NATO and reduces our response time to the vital Northern Flank from weeks to days. Both the maritime and Norway programs offer options to our national leadership and the CinCs by enabling the movement of forces to a designated area prior to hostilities, thus transmitting a strong signal of national resolve without exposing ourselves to the risk of initiating direct military involvement. This immense mobility enhancement serves as a distinct and credible deterrent to potential adversaries.

MAGTF Training

Marines are continually preparing for expeditionary service. Marine training exercises consistently emphasize combat readiness, air-ground coordination, and rapid deployment of forces. In addition to training in the mountain, desert, and coastal areas of the United States, Marines participate in exercises in Asia, Northern Europe, the Mediterranean, Central and South America, Africa, and Australia. These exercises enable Marines to maintain combat proficiency and interoperability with members of other U.S. Services and with our allies and friends abroad. Marines train and fight as a team and this concept extends solidly to our partnership with the Navy.

Our forward-deployed status also requires that we maintain an alert status against a sophisticated terrorist threat. Significant changes have been made in Marine Corps policy and training regarding terrorism counteraction.

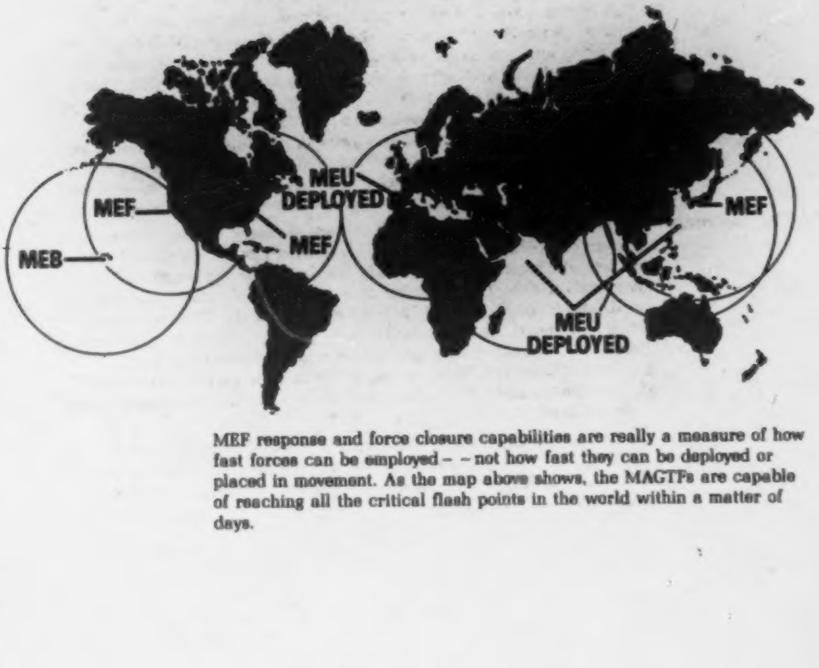
We have emphasized the protection of Marines, their families, and our assets. All commanders have been personally charged with taking action to implement these changes. One of the most important aspects of our counteraction training program has been the training of the individual Marine. Marine Battle Skills Training (MBST) will increase the combat skills of all Marines, thereby enhancing their ability to defend themselves. To complement these skills, our Marines are also given recurring and realistic training that stresses personal security measures and awareness of the threat. We are not going to grow complacent as a result of the concrete gains made to date.

MAGTF Employment

The Marine Corps does not limit itself to solving the problem of getting the expeditionary force to a crisis region, but, more importantly, focuses on concepts for employment of the force. The transition from deployment to employment requires a high state of training and readiness. Our organizational flexibility is key to providing the Unified CINCs with the most deployable and employable force across the spectrum of conflict.

Deployed MEUs are designated as "MEB (Forward)" and are fully prepared to act as the forward echelon of an expeditionary brigade. In the same manner, a MEB will always deploy as the forward echelon of the parent MEF, carrying the designation "MEF (Forward)." A modernized array of air, ground, and logistic assets within the MEF provide the capability for opposed amphibious assaults and operations ashore.

Beginning in FY-89, each MEF will contain one MEB fully prepared for immediate employment. If the MEB is committed, the MEF will be next. The MEF and the MEB will be prepared to exploit the full range of strategic lift options including amphibious assault shipping, MPF squadrons, TAV-B (aviation support ship), MSC and merchant shipping, strategic airlift and geographically prepositioned supplies and equipment.



MEF response and force closure capabilities are really a measure of how fast forces can be employed - - not how fast they can be deployed or placed in movement. As the map above shows, the MAGTFs are capable of reaching all the critical flash points in the world within a matter of days.

Preparing for the 21st Century

The justification for continued investment in the Marine Corps is the usefulness of the FMF. The mission and roles of these forces have evolved over the past 213 years in response to the needs of the Nation.

From sharpshooters in the "fighting tops" of the Continental Navy to today's forward-deployed MAGTFs, the Corps continues to evolve and make a unique and discriminate contribution to our security.

The ultimate utility of the FMF is its readiness to meet the Nation's security needs today and in the future. **Readiness** is the key to the Marine Corps' success. The Marine Corps has structured, trained, and equipped the FMF to maintain a high state of combat readiness. Furthermore, the Marine Corps is not standing still in the face of the changing security environment. We are adapting our organizational structure and concepts to meet new challenges. Our central focus is the ability to win in combat when the Nation calls upon her Corps of Marines. That is what the Nation needs and expects. Everything else we do is secondary to this purpose.

Organizational Streamlining

One example of this continuous adaptation is the realignment and reduction of headquarters bureaucracies. We have reduced the number of staff personnel at Headquarters, Marine Corps. We have combined several related procurement functions into a streamlined organization called the Marine Corps Research, Development and Acquisition Command (MCRDAC). Our intention is to speed up the acquisition process and realize efficiencies in costs, performance, and time. This initiative will support our goal of promptly providing our Marines the weapons and equipment they need to win on the battlefield. The activation of MCRDAC has proven to be a significant step forward in the way we develop, procure and support equipment for our fighting forces.

Another initiative is the reorganization of our doctrine, training and education institutions. The Marine Corps Combat Development Command (MCCDC) at Quantico, Virginia, has been recently established to enhance our effectiveness in these vital areas. We have combined our best operational experts and warriors with our doctrine and training people. We are continuing to challenge all Marines to think about warfare and the way they fight. The Marine Corps must be prepared to fight and win in a high-tempo, dynamic, combined-arms, maneuver-type battle as well as the complex tensions of the low-intensity conflict. Our strengths on the modern battlefield will be based on our well-trained Marines coupled with our operational and tactical excellence.

Master Plans

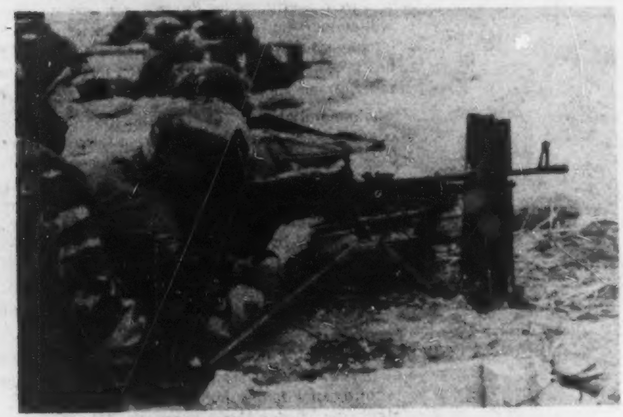
To help achieve this goal we have created the MAGTF Warfighting Center as part of MCCDC. The Warfighting Center provides the cohesion between requirements determination, weapons acquisition, and training. Three plans, the Marine Corps Campaign Plan (MCCP), the Marine Corps Long Range Plan (MLRP), and the MAGTF Master Plan (MMP) guide and direct the future of the Corps. The MCCP charts the intent of the Corps; where it is going and why; what it will do; and how it will do it. The MLRP will establish the future goals and the MMP will serve as the impetus for all planning and programming efforts. The MMP provides the definitive statement of future MAGTF operational requirements along with implementing measures in the form of doctrinal, training, education, and equipment changes to attain the necessary capability. Given the constrained budgetary environment, the Marine Corps has taken these steps to ensure there are no gaps or overlaps in our doctrine, combat development, and training programs. Like the new acquisition command, the Warfighting Center will work to ensure that the fighters in the FMF's have the right tools and training to win when the klaxon sounds.

Wargaming and Assessment

We have also created a Wargaming and Assessment Center at MCCDC. The Center's gaming, modeling and simulation capability will facilitate the development and testing of innovative proposals and concepts. The "intellectual firepower" that we have put together at the Warfighting Center will use the wargaming support as a platform to thoroughly evaluate changes to doctrine, force structure, training, and MAGTF weapons and equipment.

We have always pushed to attain the highest possible tactical and operational competence. This continues today with a focused effort by our new Marine Air-Ground Training and Education Center (MAGTEC) at MCCDC. The MAGTEC is currently conducting a comprehensive Corps-wide review of our training programs. This review will guide us towards an improved warfighting ability. In its short tenure, MAGTEC has contributed several major initiatives as we begin to turn theory into practice.

As our Nation's Force-in-Readiness, we must concentrate on our expeditionary role and our ability to fight and win. This mission orientation requires enhanced combat skills for all Marines, regardless of MOS or unit assignment. All Marines must be able to effectively serve in a rifle squad in combat operations, should the need arise.



Our new Marine Battle Skills Training (MBST) program has been developed to provide every Marine with those fundamental skills needed to survive, fight, and win on today's battlefield. MBST focuses on extensive firing of individual and crew-served weapons, basic knowledge of field skills, participation in rugged battle drills, and combat-oriented physical conditioning. MBST is one of those "new" ideas you get from looking at old ways of doing things. Our Corps used to train that way and we are now returning to these "tried and tested" methods, updated to keep pace with the changing nature of the battlefield. MBST is a vital warfighting initiative, an investment in the individual Marine, and the single most important training program in the Marine Corps today. The MBST program provides a solid foundation for the further development of individual battle skills for infantry entry-level training conducted at our School of Infantry (SOI). At the completion of the basic combat training that all Marines receive, Marine infantrymen remain at SOI for a demanding 1-month long follow-on course that enhances their initial warrior skills. At the completion of this training, they are qualified as basic **commandos.**

Professional Military Education

We have also taken a hard look at our entire professional military education (PME) system. A new program of mandatory, continuing PME requires all officers, staff noncommissioned officers, and noncommissioned officers to complete specified courses of instruction and to read specific professional literature as an individual development responsibility. This institutionalized PME program will consist of resident instruction and structured self-study, to include correspondence courses and professional reading, for those periods between resident instruction. PME will be a continuous process, and will require a personal commitment, by every leader, Corporal through General, to education in the profession of arms. This commitment will be to the individual, as well as to the improvement of subordinates. Our operational success on the increasingly more complex battlefield mandates that all Marines expand their base of professional knowledge and combat skills as we move forward into the 21st century.

Warfighting Enhancements

We have also initiated a "bottom-up" approach to restructuring the active duty FMF. Our central aim in this regard is the development of an optimal, lighter, active force that is tailored for the expeditionary mission. While we will retain a Total Force capability to field powerful MEFs to fulfill the CINC's warfighting plans, we have shaped and enhanced our active FMF into a rapidly deployable and capable expeditionary force. This force is considerably more responsive to the entire range of threat scenarios while retaining the ability to respond rapidly to global war.

The Marine Corps, through a series of special task forces, has developed over 30 initiatives for implementation in the next few years. These initiatives represent a considerable enhancement to current capabilities. One major change is the reorganization of Marine artillery regiments. We have shifted some of our heavier general support artillery to the Reserve component, and are reviewing requirements for light artillery and heavy mortars. Another change is the reorganization of our tank battalions as the MIAI tank joins the Marines.

We have streamlined our Force Service Support Groups and placed some of the support needed except for full scale conflict into the Reserves. This provides additional manpower resources for reallocation within the MAGTFs to fill higher priority needs.

Designated infantry battalions have been improved with the addition of a fourth rifle company. Selected additional billets have been added to all infantry battalions. We have also shifted some manpower assets to the infantry to improve our overall foxhole strength. The key to expeditionary forces is readiness. Readiness in training, manpower and equipment is critical and has primacy in Marine Corps resource distribution.

Our light armored units have been appreciably improved by the addition of 168 scout-infantrymen and plans to procure an assault gun variant (Light Armored Vehicle (Assault Gun) LAV(AG)). The LAV(AG) will provide the lethality and mobility inherent in our expeditionary mission. In the same vein, we have improved our mobile air defense posture by adding more light antiaircraft missile systems to our Total Force.

The command element of each MEF will be enhanced by the activation of a Surveillance, Reconnaissance, and Intelligence (SRI) Group. The SRI Group consolidates most of the intelligence gathering and analysis capability of the MEF. Now, the commander will have his intelligence planning, gathering and dissemination assets available in an integrated unit. Included in the SRI Group is radio intercept capability, a deep reconnaissance capability, imagery interpretation and linguistic experts, a sensor employment unit, and remotely piloted vehicles (RPVs). The MEF SRI Group combines the Radio Battalion, the Communications Battalion, an intelligence company, and a force reconnaissance company. The ability to integrate the entire range of intelligence acquisition and processing functions is critical to success on the modern battlefield.

The Over-The-Horizon Assault

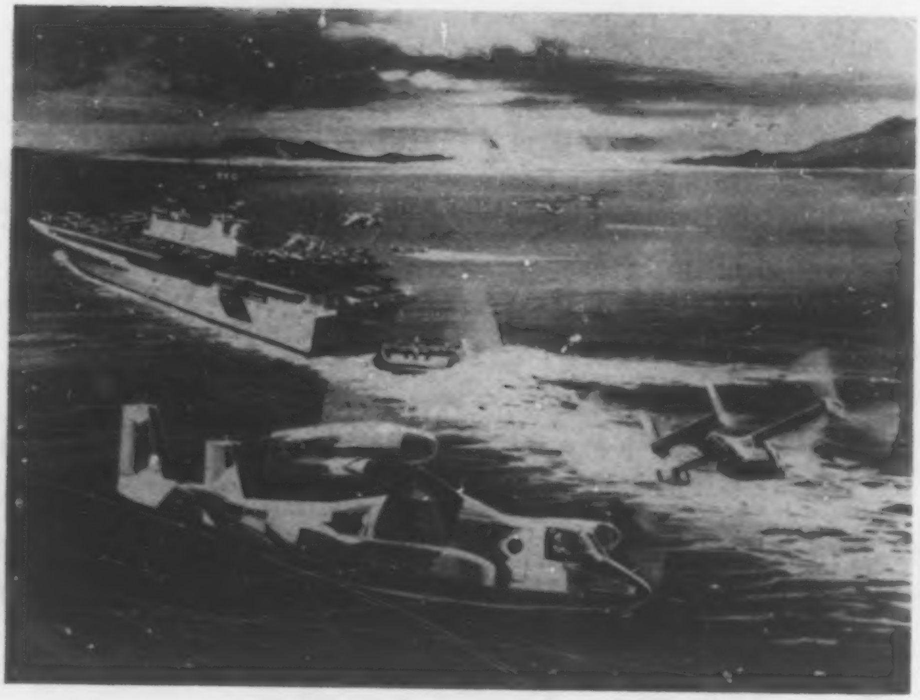
There is a school of thought which believes that the amphibious assault mission is obsolete. This argument is based on the belief that an assault against a defended beachhead is technologically infeasible. This school frequently points to the long lapse of time since the brilliant stroke at Inchon, while ignoring the most recent examples like the Falklands and Grenada.

The Marine Corps recognizes that conditions are changing and accordingly is working in partnership with the Navy towards a fully **Over-The-Horizon (OTH)** assault capability. In the future amphibious assaults will initiate far beyond the horizon and rapidly transit ashore before enemy forces can respond or bring fire upon the Amphibious Task Force (ATF). The OTH assault provides tactical surprise by expanding the potential number of beaches where we can land. By employing the new tilt rotor MV-22A Osprey and air-cushioned landing craft (LCAC), a naval expeditionary force can be 400 nautical miles (NM) offshore and still strike against a target within a 24-hour period of time.

Put into a more graphic frame of reference, a MAGTF that is 400 NM off of Norfolk, Virginia, could land at any point on a 1,000 mile coastline that stretches from New York to Florida. This range of potential landing points negates an enemy's ability to mass an opposing force against the landing force and compells him to dilute his strength over the extended beachline. It also provides the landing force with tactical surprise and the time it needs to consolidate ashore.

The extended combat radius of the Osprey, 400 NM versus only 70 NM for a combat-loaded CH-46 troop transport or 250 NM for the CH-53E Super Stallion helicopter (without in-flight refueling), allows the landing force commander to bypass enemy strongpoints and strike targets in the rear of the objective area. This forces the enemy commander to disperse his forces in more depth. The critical aspect of the OTH concept is the ability of the task force to rapidly approach the beach from far over the horizon. This facilitates tactical surprise because the defenders will not know exactly where we will strike. The ATF's exposure to shore-based missiles is also greatly minimized. Using the Advanced Assault Amphibious Vehicle (AAAV), high speed LCAC, and the Osprey, the ATF will have the capability to begin its assault from miles out to sea. Because of the speed of these advanced new assets, the landing force can transit ashore faster than ever before, and faster than the enemy can respond with any serious opposition.

The United States must retain a strong forcible entry capability. The amphibious operation represents a competitive strategy against an adversary with extended coastlines and vulnerable flanks. However, amphibious shipbuilding programs must keep pace if this capability is to remain viable. Our amphibious fleet has improved thanks to the support provided by the Navy, but block obsolescence of older LPH-class ships will begin in 1996 and a continued effort is necessary to maintain our vital strategic lift. Naval gunfire support for the vulnerable ship-to-shore movement is needed. Command and control issues must also be addressed. We are continuing to work closely with the Secretary of the Navy and the Chief of Naval Operations as, together, we overcome these challenges.



The Fleet Marine Forces: Aggregate Utility in a Changing World

Over the past 200 years the Marine Corps has carefully developed capabilities in terms of doctrine, equipment, and technologies to provide a force that is both flexible and effective. That evolutionary effort is still in progress today. We feel that we are in a significant period of our history as we adjust to meet new challenges. We have realigned our force structure and training programs in response to likely requirements. The result is a continuously evolving naval expeditionary force. Looking forward into the next 20 years, the dangerous international forecast, coupled with our austere funding levels, we believe that there is a clear demand for flexible and mobile forces that can operate across the spectrum of conflict at a modest investment of the defense budget. The Marine Corps fulfills this requirement.

The MAGTF is unique and flexible. It possesses all the elements of combat under a single commander—the infantry, the artillery, the armor, the requisite logistics, and the aviation support. No other organization in the world has this organic capability. No other organization in the world has taken the combined-arms concept to its ultimate fruition. This capability makes the MAGTF most effective in its demanding range of operations from stability operations in regional crises to operations ashore after an amphibious landing.

While we emphasize the utility of naval expeditionary forces for the **most likely** conflicts in the developing regions of the world, we stand fully prepared for the **most challenging** conflict at the high end of the continuum of violence. It is this level of preparedness and flexibility that has made the Marine Corps the force of choice in crisis response. To quote former President Reagan, "When trouble arises, the Nation looks to her Marines." Our expeditionary capability has paid dividends time and time again.

The MAGTFs complement our national strategy by providing on scene assets and options in very fast developing international crises. They deter potential aggressors, and if necessary are prepared to defend our national interests by military action. They are designed to be fully interoperable with the Navy, Army, and Air Force. When called upon, they will be successful. This range of existing capabilities, coupled with selected initiatives designed to tailor our forces for the unique demands of the current threat, clearly enhances the aggregate utility of the Corps.

Chapter II

Resources Allocation Overview

Introduction

The DoD Planning, Programming and Budgeting System (PPBS) is the framework within which decisions are made that shape the character and capabilities of our forces. Plans emerge from the totality of operational requirements, treaties, experience, existing plans and formal guidance. Programs supply resources to the most essential capabilities contained in the plans. Budgets finalize allocation of resources to the programs.

Decisions that have impact on acquisition programs occur both within the systems acquisition process and in the PPBS. The relationship between these processes is fundamental to understanding how equipment is selected, resourced, and procured. The requirements determination process, as the generator of required capabilities to be included in service plans, ultimately results in the identification and validation of the need for a new piece of equipment. The PPBS provides access to the resources and fiscal wherewithal for the acquisition process to work. In turn, the systems acquisition process depends on the PPBS to provide the planning, programming, and budgeting of the fiscal profile into which the acquisition programs are fitted for annual presentation to Congress.

The Deputy Chief of Staff for Requirements and Programs is responsible for development of the Marine Corps' input to the Department of the Navy Program Objective Memorandum (DON POM). The Marine Corps POM is developed in response to the Defense Guidance (DG) and Marine Corps Mid-Range Objectives Plan (MMROP). In addition to these documents, the POM incorporates the goals and objectives expressed during the Program development cycle by the Commandant of the Marine Corps and the Secretary of the Navy's DON Consolidated Planning and Programming Guidance (DNCPPG).

POM Building

Regardless of where the development and acquisition effort takes place, solutions requiring resources must be competed as initiatives in the POM process. That process is initiated with an updated Master Plan that highlights the deficiencies identified by the Force Commanders, the Marine Corps Combat Development Command, and Headquarters, Marine Corps. The Master Plan will then guide the program development effort.

FIGURE II-1 **Overview of Planning, Programming and Budgeting System (PPBS)**

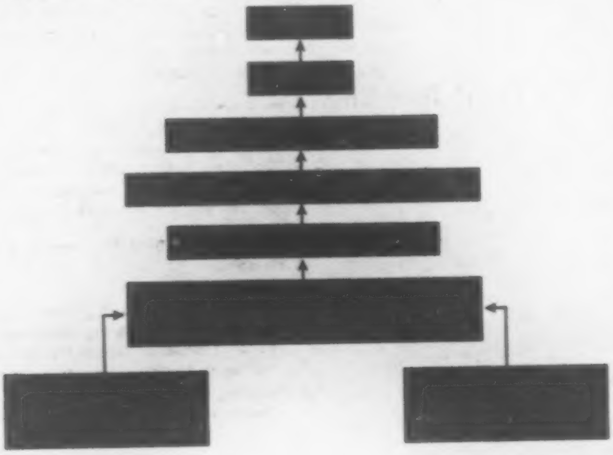
- **Planning**
  - **View the threat**
  - **Develop strategy and policy**
  - **Develop force planning guidance**
  - **Present required capabilities in the MMROP in order of priority within and between mission areas**
- **Planning - Programming Bridge**
  - **Develop fiscally influenced master plans**

FIGURE II-1 Overview of Planning, Programming and Budgeting System (PPBS)

- Programming
  - Translate master plan content into achievable program package in accordance with planning priorities
  - Apply fiscal and resource constraints
  - Develop the FYDP
- Budgeting
  - Translate program decisions into budget justification format
  - Review programs for executability and acquisition strategy

When program initiatives are submitted into the PPBS/POM process, these initiatives are prioritized with respect to all other program initiatives submitted by sponsors. Initiatives are considered over and above an artificially low funding level set for the "core" programs to force discrimination and identification of lower priority programs. These lower priority programs are then required to recompete for funding with all other identified deficiencies and new initiatives. Program priorities within the POM process are established using decision analytical tools, assessment of operational need, and cost-benefit analysis so that the programming committees can objectively establish priorities among unlike programs (see figure II-2). FMF program priorities are established initially through a Program Evaluation Group (PEG) held by MCCDC with MCRDAC participation. NonFMF program priorities are established initially through a nonFMF PEG held at Headquarters. The top programs from the initiative prioritization process that can be accommodated above the core and within the established funding ceiling form the new Marine Corps POM. This POM is then submitted for consolidation with the Navy POM and becomes the DON POM after Secretary of the Navy review and approval. The DON POM (and other service POMs) are then reviewed in detail by the Defense Resources Board (DRB) and approved for incorporation in the Defense Budget.

FIGURE II-2 Structure for POM Development and Review



The most mature 2 years of the POM then go through extensive reviews by the Navy Comptroller and Office of the Secretary of Defense (OSD) before they transition into the Marine Corps' portion of the President's Budget. At that time they become the management responsibility of the Fiscal Director of the Marine Corps and appropriation sponsors.

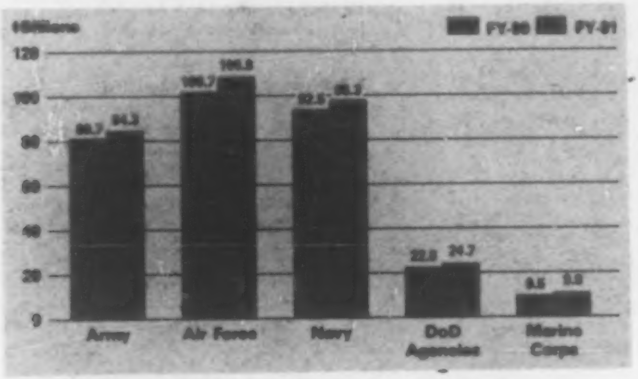
Financial Resources

Financial resources are the funds that are programmed, budgeted, appropriated, obligated, and finally expended to cover service investment and operational requirements. Total Obligational Authority (TOA) refers to the total financial resources available to DoD. The DoD PPBS establishes the ground rules for the allocation of the DoD TOA. Displayed below is the TOA for all of DoD from FY-87 through the FY-90/91 Biennial Budget:

	FY-87	FY-88	FY-89	FY-90	FY-91
$ Billion	279.5	283.2	290.2	305.6	320.9

Directly following in figures II-3 and II-4 are charts which display the percentage of DoD funds budgeted by each service/agency. This TOA is subsequently divided into appropriations.

FIGURE II-3 **DoD FY-90/91 Budget Chart, By Service**



Appropriations

An appropriation is the legal apportionment by an act of Congress to incur obligations for specified purposes and to make payments from the Treasury of the United States. There are three types of appropriations in the Marine Corps:

- Annual
  - Military Personnel
  - Operation and Maintenance
- Multiyear
  - Procurement
  - Military Construction
  - Family Housing
- Revolving
  - Stock Fund

Funds may be expended only for the purpose for which appropriated. Following are the USMC appropriation titles with a brief synopsis of what each provides:

Military Personnel, Marine Corps (MPMC)
For pay, allowances, individual clothing, subsistence, interest on deposits, expenses for organization movements and expenses of temporary duty travel between permanent duty stations.

Reserve Personnel, Marine Corps (RPMC)
For pay, allowances, clothing, subsistence, gratuities, travel, and related expenses for personnel of the Marine Corps Reserve on active duty.

Operation and Maintenance, Marine Corps (O&MMC)
For expenses necessary for support of the FMF, civilian employee pay, travel and transportation, training, consumable supplies, recruiting and advertising, base operations and base communications.

Operation and Maintenance, Marine Corps Reserve (O&MMCR)
For expenses necessary for the operation and maintenance, including training, organization and administration of the Marine Corps Reserve; repair of facilities and equipment; hire of passenger motor vehicles; travel and transportation; and communications.

Procurement, Marine Corps (PMC)
For expenses necessary for the procurement and manufacture of ammunition, weapons and tracked combat vehicles, guided missiles and equipment, communications and electronics, support vehicles, engineer and other equipment and spares and repair parts.

The following are Navy appropriations of which the Marine Corps programs its share. These appropriations are divided into the blue/green (Navy/Marine Corps) split.

Military Construction, Navy (MCON)
For acquisition, construction and installation of temporary or permanent public works, naval installations and facilities for the Navy and the Marine Corps.

Family Housing, Navy and Marine Corps (FHN&MC)
For the construction, maintenance, repair and design of Navy and Marine Corps housing and ancillary facilities required at bases and stations.

Navy Stock Fund (NSF)
For the procurement of stock funded War Reserve Material required to achieve a material support posture to provide war reserve asset levels and inventory objectives for combat-critical items. Examples include: supplies, minor items of equipment, and parts used in the manufacture, assembly or repair of items of equipment.

Military Construction, Navy Reserve (MCNR)
For construction, acquisition, expansion, rehabilitation, and conversion of facilities for the training and administration of the Reserve components of the Navy and Marine Corps.

A display of the TOA in millions of dollars allocated to each of these appropriations is displayed on the following page:

FIGURE II-4 **Marine Corps TOA**

	FY-88	FY-89	FY-90	FY-91
MPMC	5,563	5,719	5,219	5,984
RPMC	294	316	319	338
O&MMC	1,831	1,866	1,746	1,963
O&MMCR	80	78	77	79
PMC	1,278	1,292	1,206	1,415
NSF (MC)	21	33	21	27
FHMC	180	157	122	127
MCON	232	276	170	165
MCNR	23	4.5	11	9
Total	9,489	9,721	8,483	8,947

The allocation of Marine Corps resources to specific appropriations for FY-90 and FY-91 is shown in Figures II-5 and II-6 below:

FIGURE II-5 **FY-90 TOA by Major Appropriation**

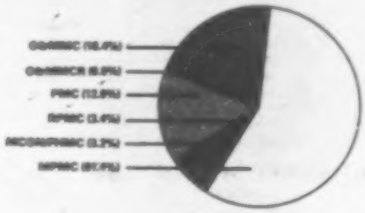
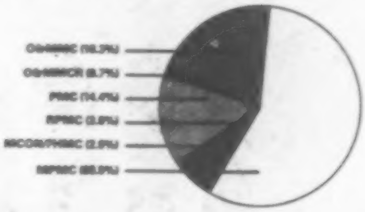


FIGURE II-6 **FY-91 TOA by Major Appropriation**

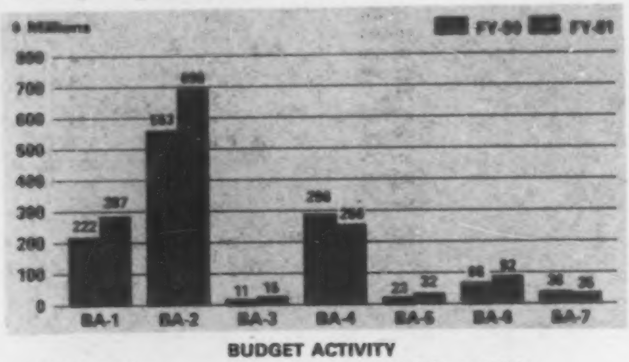


In addition to MCON, MCNR, FHN&MC and NSF the Marine Corps also receives funding support through the following Navy "blue dollar" appropriations:

- Aircraft Procurement, Navy (APN)
- Research, Development, Test and Evaluation, Navy (RDT&EN)
- Other Procurement, Navy (OPN)
- Military Personnel, Navy (MPN)
- Reserve Personnel, Navy (RPN)
- Operation and Maintenance, Navy (O&MN)
- Operation and Maintenance, Navy Reserve (O&MNR)
- Weapons Procurement, Navy (WPN)

Figure II-7 depicts how the Marine Corps PMC is allocated to budget activities for the FY-90/91 Biennial Budget.

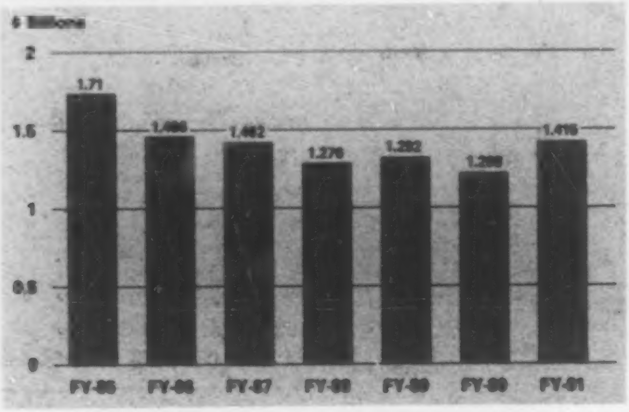
FIGURE II-7 **PMC by Budget Activities**



BA-1: Ammunition
BA-2: Weapons and Combat Vehicles
BA-3: Guided Missiles and Equipment
BA-4: Communications and Electronics Equipment
BA-5: Support Vehicles
BA-6: Engineer and Other Equipment
BA-7: Spares and Repair Parts

Figure II-8 depicts the PMC appropriation over the past several years.

FIGURE II-8 **PMC by Fiscal Years**



Chapter III

Programs for Improved Marine Air-Ground Task Force (MAGTF) Capabilities

Part 1: Ground Combat Element

Introduction

The GCE of a MAGTF is a task organization tailored to accomplish a particular mission. It is constructed around an infantry unit and varies in size from a reinforced battalion to one or more reinforced Marine divisions. It includes the full range of ground combat systems to include combat support.

This section is composed of those program areas associated with the mission area of ground combat.

Light Antiarmor Weapon, AT-4

Description The AT-4 is a shoulder-fired rocket launcher with a high explosive antiarmor warhead. This weapon provides the individual Marine with an antiarmor capability. The 84mm AT-4 is a man-portable, single shot, throwaway munition that will replace the current 66mm Light Antiarmor Weapon (LAAW).

Procurement Profile

	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	46,222	16,636	3,706	3,707	4,262	4,374

Why is it Important? The AT-4 will provide individual Marines an antiarmor capability on the battlefield. Although heavier than the present LAAW, the AT-4 will provide greater lethality and penetration.

Program Status Procurement of the AT-4 began in FY-86 and will continue until the authorized acquisition objective is attained.

Developer/Manufacturer Honeywell

Combat Excavator

Description The M9 Armored Combat Earthmover is a highly mobile, tracked, armored earthmover designed for use by combat engineers in the forward area. The multipurpose vehicle is equipped with a blade and a hydropneumatic suspension system which gives it excellent heavy digging and rough terrain grading capabilities. The vehicle is capable of self-loading/unloading and transporting eight cubic yards of material. Dozing and scraping are accomplished by raising and lowering the entire front-loading scraper bowl and hydraulically operated apron. In addition, the vehicles'armor protects the operator and vehicle from small arms and artillery fragments. The operator is provided a smoke obscuration capability and chemical/biological protection. The vehicle is capable of relatively high road speeds and can swim in calm water. It is configured for on/off loading in all present airlift aircraft (i.e., C130, C141, C5).

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	—	—	—	—	38	87

Why is it Important? The Marine Corps currently relies on commercial type construction equipment for its combat engineer battalions. This equipment is not responsive to the increased mobility of the ground combat element of the MAGTF. The Combat Excavator will provide a wide range of combat excavations such as: (1) enhancing mobility by creating roads, breaching obstacles, such as antitank ditches and other area denial obstacles and preparing river crossing sites; (2) preparing enemy countermobility obstacles, and (3) preparing hull defilade fighting positions for tanks and infantry fighting vehicles and protected positions for crew-served weapons and other critical battle systems to increase their survivability

Program Status The Marine Corps will employ an off-the-shelf NDI acquisition strategy. The Marine Corps desires to take delivery of the first vehicle in early 1993.

Developer/Manufacturer BMY Corp., York, Pennsylvania

M1A1 Main Battle Tank (MBT)

Description The M1A1 is an improved version of the M1 tank. M1A1 improvements include a 120mm smoothbore gun, a Nuclear, Biological, and Chemical (NBC) overpressure system, and an improved armor protection package. Beginning with Marine Corps procurement, the U.S. Army and Marine Corps have agreed to produce a similar tank called the M1A1 Common Tank. The Common Tank will provide the capability to conduct operations in an amphibious environment. The Common Tank will include (in addition to the 120mm smoothbore gun, the NBC overpressure system, and the improved armor package), a Position Location Reporting System (PLRS), a ship tie-down enhancement modification, and a Deep Water Fording Kit (DWFK).

Procurement Profile

	Prior	FY-89	FY-90	FY-91
Quantity	—	66	155	255

Why is it Important? The M1A1 tank will significantly increase the capabilities of FMF armor units. The M1A1's increased survivability, lethality, and mobility will meet Marine Corps near and midterm MBT requirements against threat armor. The increased numbers of Soviet bloc tanks being exported throughout the world results in a greater probability that Marine expeditionary forces will have to face a modern armor threat. The M1A1 provides the MAGTF with a qualitatively superior system to match the threat's quantitative advantage. The M1A1 tank is a fully developed and supported system capable of conducting the full spectrum of armor operations in an amphibious environment and during subsequent operations ashore.

Program Status The Marine Corps approved the M1A1 MBT for service use and procurement in February 1985. Initial Operational Capability (IOC) is scheduled for 1st quarter FY-91.

Developer/Manufacturer General Dynamics-Land Systems Division

Remotely Piloted Vehicle (RPV)

Description This program enhances the Marine Corps' ability to meet requirements to provide target acquisition, battlefield surveillance, reconnaissance, and radio relay capability in support of the MAGTF. The Marine Corps has operated RPV systems for the past 4 years in order to refine requirements and develop Navy and Marine Corps Concepts of Employment. A Pioneer RPV system is comprised of eight air vehicles, associated payload packages, a ground control station (GCS), a portable control station (PCS), and four remote receiving stations and launch/recovery subsystems.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	5	3	0	2	2

Why is it Important? The MAGTF commander requires timely intelligence and surveillance of the enemy situation. The Marine Corps has a long standing interest in developing an RPV capability for unmanned aerial target acquisition, reconnaissance and radio relay. The RPV provides those capabilities in high threat scenarios where the use of expensive manned aircraft and highly trained crew members may be imprudent. The use of RPVs also releases manned platforms for employment in missions requiring human judgment and expertise.

Program Status Under the Interim Ground Launched Short-Range Program, authorized by Secretary of the Navy in July 1985, five Pioneer RPV systems were procured for the Marine Corps, thereby establishing a minimum essential capability (MEC). Three RPV companies, one in support of each MEF, operate the Marine Corps' RPV systems. In FY-88, Congress directed that OSD consolidate Service RPV programs and that a Joint Program Office (JPO) for Unmanned Aerial Vehicles (UAV) be formed. IOC for the follow-on DOD short range UAV is FY-93. Current plans call for acquisition of 18 short range UAV systems to satisfy Marine Corps requirements.

Developer/Manufacturer Interim- AAI Corp., Cockeysville, MD

Dragon Product Improvement Program (PIP)

Description The M47 Dragon is a medium antiarmor weapon. It is a tube-launched, optically-tracked, wire-guided missile system consisting of a missile, tracker, and a fiberglass launch tube. The missile is contained within the launcher, and after each engagement the reusable tracker is removed and the launcher is discarded.

Procurement Profile

Quantity	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Phase 1	1,700	7,014	1,495	—	—	—	—
Phase 2	—	—	—	—	1,200	4,840	5,920

Why is it Important? The PIP of the current Dragon system is a two phased program that will provide a viable medium antiarmor weapon until the mid-1990's.

Phase 1: This phase will retrofit our current inventory of Dragon I missile warheads to a Dragon II configuration. This change will enhance armor penetration by 80 percent over the current warhead's capability.

Phase 2: This phase provides for the procurement of an improved missile and tracker (Dragon III). The improved missile will be able to fly to 1,000 meters 5 seconds faster than the current missiles and will have a range of 1,500 meters vice the current 1,000 meters. The tracker will have a combination day/night capability and will not exceed 16 pounds in the ready-to-fire mode. The tracker will have an improved tracking capability that will ensure an improved kill probability at maximum range and allow the tracking of moving targets.

Program Status The Marine Corps desires to acquire the Dragon III as an interim replacement for the present Dragon while continuing to support the Army's development of the Advanced Antitank Weapon System-Medium (AAWS-M) with the objective to ultimately acquire a cost effective, high/low mix of medium range antiarmor missiles. Phase 1 will retrofit 10,209 missile warheads. For Phase 2, the Marine Corps may exercise contract options to purchase 6,500 missiles and 700 trackers per year starting in FY-92.

Developer/Manufacturer McDonnell Douglas

TOW-2A

Description The TOW-2A is the latest missile in the TOW family. It is an antitank weapon with increased lethality and probability of hit. It has an improved capability in reduced visibility conditions and is less susceptible to countermeasures. The TOW-2A missile contains a six-inch warhead, upgraded flight motor and a thermal beacon.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	5,930	2,566	839	900	3,290	2,146

Why is it Important? The improved missile will permit Marine infantry units to defeat advanced Soviet armor and will enhance the infantry's antiarmor capability on the battlefield.

Program Status Procurement of the TOW-2A began in FY-87. Other TOW improvements are continuing.

Developer/Manufacturer Hughes Aircraft

AAV7A1 Product Improvement Program

Description The AAV7A1 PIP is a fully integrated package of reliability, survivability and combat capability improvements to the Marine Corps' current assault amphibious vehicle. The purpose of the AAV7A1 PIP is to extend the combat utility of the AAV7A1 until a successor is introduced during the period of 1999 - 2004. The major elements of the PIP include the Upgunned Weapons Station, Magnetic Heading System, Enhanced Applique Armor Kit, Bow Plane, Automatic Fire Sensing and Suppression System, Improved Transmission and Advanced Propulsion System.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Funding ($ M's)	21.0	47.7	12.9	18.1	0	3.4

Why is it Important? The MAGTF requires the capability to execute the ship-to-shore movement of its assault elements against defended objectives. The amphibious force requires a vehicle that provides speed through the water, armor protection against indirect fire, and an ability to transition to operations on land. The AAV7A1 provides these critical functions as the MAGTF builds up combat power ashore during the amphibious operation. The AAV7A1 is the product of the Service Life Extension Program of the LVT7 family of amphibious vehicles, introduced in 1972. Full replacement for the Marine Corps' AAV7A1 fleet will not occur until early in the 21st century, over 30 years after the introduction of the vehicle. The achievement of this service life is possible only through a pre-planned product improvement program targeted at extending the mechanical life of the vehicle while providing the warfighting enhancements that will retain the vehicle's combat utility until its replacement is fielded

Program Status The AAV7A1 PIP commenced with the initial fielding of the Upgunned Weapons Station during 1987 and will continue through the mid-1990s. Upgunned Weapons Stations, Bow Planes and Magnetic Heading Systems will be fully fielded by 1990. The Automatic Fire Sensing and Suppression System will be fully fielded by 1990. Enhanced Applique Armor Kits and Improved Transmissions will be fully fielded by 1992.

Developer/Manufacturer FMC

Advanced Amphibious Assault Program

Description The goal of the Advanced Amphibious Assault (AAA) Program is to provide the Marine Corps with an OTH, forcible entry, amphibious capability that replaces the AAV7A1. The product of the AAA Program will complement the LCAC and the MV-22 in providing amphibious lift to the MAGTF.

Procurement Profile Procurement funding for this current developmental program will commence in FY-97.

Why is it Important? The AAA will satisfy multiple mission area needs by providing the mobility, firepower, and armor protection to embarked personnel during the ship-to-shore portion of the amphibious assault as well as subsequent operations ashore. The OTH concept requires the high-speed, long range transit of amphibian vehicles. The Marine Corps' amphibious assault capability requires the continuous application of technology to our amphibious vehicle capability for the tactical movement of the assault echelon. Maintaining the amphibious capability is a competitive strategy that places our amphibious task forces along selected weak flanks of the enemy. The AAA's inherent characteristics allow the uninterrupted movement of the surface assault forces from ships over the horizon to inland objectives. Its speed, both on land and in the water, firepower, and armor protection will permit, when the situation dictates, the forcible entry of Marine expeditionary forces against opposed landing zones. The AAA provides the MAGTF with a replacement for the AAV7A1 with the required surface mobility, survivability and firepower. Fielding is expected to begin in 1999.

Program Status The AAA program was approved by the Defense Acquisition Board as a major new start and entered Concept Exploration during July 1988. RDT&E funding commences in FY-90. Milestone I is scheduled for the first quarter of FY-91. The AAA Program is currently exploring the various system, concept and doctrine alternatives that may fulfill the Marine Corps' future amphibious assault requirements. One of the alternatives being explored is the Advanced Amphibious Assault Vehicle (AAAV). If the AAAV is developed and produced, initial fielding is expected in 1999 with full fielding in 2004.

Developer/Manufacturer TBD. Among companies that have expressed interest in participating in the AAA Program are FMC, AAI, General Dynamics, Cadillac Gage and General Motors.

Light Armored Vehicle-Air Defense (LAV-AD) Program

Description

The LAV-AD is being developed as a member of the LAV family of vehicles. The LAV family is a series of 8x8 wheeled, light armored vehicles that provide significant improvements in firepower and tactical mobility for combat units. USMC strategy requires other LAV configuration or mission role vehicles (MRVs) such as the LAV-AD, to perform mission roles in an integrated combined arms team. All vehicle configurations have the same power plant, drive train, and steering assemblies and similar ballistic hulls.

The LAV-AD is a ground-based, low altitude, antiaircraft weapon platform featuring a stabilized turret with shoot-on-the-move capability mounted in a LAV chassis. The system will integrate a rapid fire 25mm automatic gun and four to eight Stinger surface-to-air missiles. The turret will also have the capability to incorporate the 2.75 inch Hydra 70 rocket system.

The LAV-AD fire control system will consist of a forward looking infrared (FLIR) sight, a laser rangefinder, a contrast autotracker, a vehicle navigation system, a fire control computer and various sensors. Target acquisition and tracking features visual, sensor, and external sources integrated into manual and automatic modes.

Procurement Profile

	Prior	FY-94
Quantity	—	8

Why it is Important?

The mission of the LAV-AD is to defend maneuvering Marine Corps combat forces from airborne attack and provide ground defense against light armored mechanized forces. The proliferation of sophisticated air assets throughout the world requires that the MAGTF be able to defend itself against air attack.

Program Status

The LAV-AD program is in Full Scale Development (FSD) with two contractors developing and integrating two prototype turrets into a LAV chassis. Developmental and operational testing occurs in FY-90/91 with production award to one contractor planned for FY-94 contingent upon successful testing. The Marine Corps' acquisition objective is 157 systems.

Developer/Manufacturer

General Electric and FMC in FSD

Light Armored Vehicle-Assualt Gun (LAV-AG) Program

Description The LAV-AG is being developed as a member of the LAV family of vehicles. USMC strategy requires other LAV configurations, such as the LAV-AG, to perform mission roles in an integrated combined arms team. All configurations have the same power plant, drive train, and steering assemblies and similar ballistic hulls.

Procurement Profile

	Prior	FY-92	FY-93	FY-94	FY-95
Quantity	—	LLI	44	57	88

Why is it Important? The LAV-AG will provide a highly mobile direct fire capability for the Light Armored Infantry (LAI) Battalion and other units of the MAGTF. The Marine Corps Assault Gun requirement is for a quick fire/direct fire capability to destroy enemy command vans, bunkers, installations, and armored vehicles consistent with the level of mobility/transportability designed into the LAV family of vehicles.

Program Status The LAV-AG acquisition strategy for FSD is to provide two qualified contractors with two chassis/guns each. The contractors will design and integrate a turret into the LAV chassis and deliver the prototype systems for Marine Corps testing. These systems will participate in development and operational testing during FY-91. Production contract award is scheduled for FY-93 with deliveries beginning during FY-94.

Developer/Manufacturer TBD

The basic LAV-25 (shown above) mounts an M242 25mm automatic cannon. The Air Defense and Assault Gun configurations will complete the LAV family which also includes Antitank, Mortar, Recovery, Command and Control, and Logistics variants.

Rigid Raiding Craft (RRC)

Description The RRC is a fiberglass boat with twin 70hp motors. It is 18' long and 7' wide with an empty weight of 2400 pounds without engines. The boat has a subdued color scheme and an internal fuel tank with a capacity of 56 gallons. It will carry 10 men and a coxswain in optimum sea states. The RRC is compatible with Navy shipping and can be stacked three high aboard ship in a special cradle system designed at MCLB, Albany, GA.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	122	42			

Why is it Important? The threat to United States' interests by unconventional enemies has increased significantly. The ability to respond selectively and quickly without becoming committed to protracted operations requires special tactics and equipment. Except for the Zodiac F-470 (a slow-speed rubber boat), the Marine Corps did not have the capability to deliver units carrying out conventional or special missions in high speed, waterborne surface craft. Assault Amphibian Vehicles, Navy landing craft and helicopters have delivery capabilities, but also have disqualifying limitations such as weather, speed, noise, size, and radar signature. With the addition of the RRC, the Marine Corps will gain a high speed, surface, low signature, amphibious method for the insertion and extraction of small units. The RRC will be used for amphibious raids, clandestine recovery operations, limited objective attacks, security operations, and reinforcement operations.

Program Status A sole source contract was awarded for 122 boats which have been delivered and are in service. An additional 42 will be procured during FY-89 through a competitive process with delivery expected to commence during 1st quarter FY-90.

Developer/Manufacturer Boston Whaler Company for the sole source procurement and an unknown source for the competitive action.

Catapult Launched Fuel-Air Explosive Land Mine Countermeasures Systems (CATFAE)

Description CATFAE is a rapid-response land mine countermeasure system capable of breaching enemy mine fields in very shallow water and from the high water mark inland in conjunction with lead echelons of the amphibious assault. The system will be employed by AAV units to provide highly mobile, quick response capability for breaching single impulse pressure and tilt-rod antitank and anti-personnel minefields. CATFAE will be capable of operating from a stationary position or on the move, afloat or ashore. This system can fire single rounds at a point target or volleys of rounds (up to 21 total) to create a cleared lane through a minefield. Breaching a 20m x 300m lane through a minefield can be accomplished in 90 seconds or less with vehicle speeds up to 6 knots afloat and 15 MPH ashore.

Procurement Profile

	Prior	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	—	—	—	—	—	11

Why is it Important? The CATFAE system has the potential to meet a substantial portion of the beach and inland countermine deficiencies that are of such great concern to both Navy and Marine forces. In addition to being able to clear a lane up to 300 meters long, CATFAE provides far greater accuracy, standoff distance and responsiveness than any system currently fielded or under development while also providing improved survivability for the host AAV. It also provides additional options with its ability to fire single rounds or volleys at point targets.

Program Status CATFAE will be the subject of a Marine Corps Program Decision Meeting (MCPDM) II decision early in FY-89. If approved, the program will transition to FSD.

Developer/Manufacturer TBD

NBC Defense Programs

M40/42

Description

The M40/42 series of field protective masks will replace the M17 (general purpose), M25 (vehicle crewman), and M9 (heavy duty) masks during FY-89. Principal changes include an external canister, additional voicemitter, and improved protection.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	61,265	48,193	54,015	52,555	53,285

CAM

Description

The Chemical Agent Monitor (CAM), to be fielded in FY-92, is a hand held, man-operated device for monitoring blister and nerve agents and contamination on personnel and equipment.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity				448	755	1154

ICAD

Description

The Individual Chemical Agent Detector (ICAD) will be a lightweight, battery operated detection device employed to determine the presence of attack concentrations of chemical agent vapors and warn of the need to take appropriate protective measures.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Funding ($ M's)			2.0	2.0	1.0

PCPS

Description

The Portable Collective Protection System (PCPS) is a lightweight, expendable collective protection tent which will support small command and control units and will provide rest and relief for units which must operate in a contaminated environment for extended periods. It is targeted for FY-90 fielding.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity			120	120	800	800

XM21

Description

The XM21 remote sensor chemical agent alarm can detect chemical agent clouds at a distance of up to five kilometers. We plan on fielding this device in FY-93.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity					67

XM291

Description The XM291 Decontamination Kit will also be fielded in FY-91 to support the decontamination of a Marine's individual equipment.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity				100,000	100,000

Why is it Important? The MAGTF requires an increased ability to survive and continue to operate in an NBC environment. Better protection and means which will minimize the operational and logistics impact of NBC defense are a must because the threat is formidable. Soviet and Warsaw Pact Forces are better equipped, structured, and trained to conduct offensive and defensive chemical warfare than any other military forces in the world. Recent activities in the Iran-Iraq conflict suggest that chemical weapons are proliferating throughout the globe.

Program Status The equipment being fielded will support rapid decontamination either at or near the point of contamination, allowing the unit to continue to fight. New NBC protective overgarment suits provide increased protection for longer periods. All equipment is more easily maintained and more reliable than the equipment replaced. Marines will soon have the capability to conduct extended operations in an NBC environment.

Developer/Manufacturer PDA- Chemical Research, Development and Engineering Center (CRDEC), Edgewood, MD and USA Natick RD&E Center, Natick, MA.

Part 2: Aviation Combat Element

Introduction

The MAGTF's Aviation Combat Element (ACE) provides the MAGTF commander with a force multiplier, ready for deployment and employment, that is capable of meeting the MAGTF's requirements for tactical air support across the spectrum of conflict. In meeting these requirements, the ACE performs the following six functions.

1) **Anti-Air Warfare** permits MAGTF ground force operations uninhibited by enemy air forces.

2) **Offensive Air Support** isolates the battlefield and provides timely and accurate close air support.

3) **Assault Support** insures the rapid build-up of combat power ashore and provides the means to quickly maneuver ground forces on the battlefield.

4) **Reconnaissance** provides the MAGTF commander with tactical information which can be used to influence MAGTF operations.

5) **Electronic Warfare** neutralizes enemy radars in support of ACE operations and provides the MAGTF commander with tactical information which is used to update the enemy order of battle.

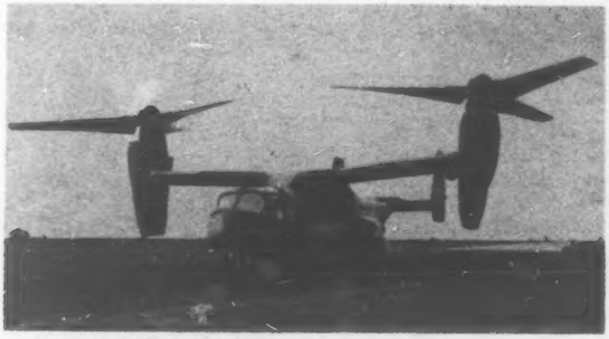
6) **Control of Aircraft and Missiles** provides the MAGTF commander with the capability to effectively use the ACE assets to favorably influence combat operations.

The ACE provides the MAGTF enormous flexibility, mobility, and firepower. Aviation weapons systems are selected and designed to enhance and complement the Corps' expeditionary nature. Aviation's primary goal is to provide dedicated day/night air support to the MAGTF.

An ACE is specifically tailored and task organized to provide the most efficient and effective mix of aviation assets to the MAGTF. This organizational method maximizes combat power and minimizes logistical requirements.

The aviation weapon system programs in this section take advantage of new technology to offer the MAGTF greater, more accurate firepower; faster, more versatile movement to battle; detailed, timely intelligence; and many other capabilities required of a modern expeditionary fighting force.

V-22A "Osprey"



Description The V-22 "Osprey" is an advanced combat assault aircraft. The program is managed by the Navy for joint service application. The V-22 is a tilt-rotor aircraft combining the efficient flight characteristics of a modern turbo-prop aircraft with the vertical take off and landing capabilities of a conventional helicopter. The Osprey will cruise at 250 knots and, with a ferry range of 2,100 nautical miles, will be capable of self-deploying worldwide without aerial refueling. The combined capabilities of the tilt-rotor technology are ideally suited for expeditionary operations in locations that do not have modern air facilities. The present procurement quantity of 657 aircraft provides 552 for the Marine Corps, 50 for the Navy and 55 for the Air Force. The Navy is also studying procurement of additional aircraft for use in antisubmarine warfare.

Procurement Profile

Quantity	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
DON	—	—	12	24	45	54	58
USAF	—	—	—	—	—	6	12
(DoD Total)	—	—	12	24	45	60	70

Why is it Important? The MV-22 is the keystone of the Corps' assault support force as it enters the 21st century. It provides the MAGTF with an assault support aircraft of unprecedented speed, endurance, and battlefield survivability. The speed advantages provided by its use of tilt-rotor technology will make over-the-horizon assaults an effective reality. Potential enemy forces will have difficulty determining where and when an Osprey-borne force is likely to land. The MV-22 represents a revolutionary improvement coupled with an exponential increase in capability, fully comparable in terms of magnitude to the introduction of the jet engine. The Corps needs the MV-22 to fight and win on tomorrow's battlefield.

Program Status The Osprey is presently in Full Scale Development with Milestone IIIA projected for December 1989 and IOC is scheduled for April 1992.

Developer/Manufacturer Bell Helicopter Textron and Boeing Helicopters

F/A-18 "Hornet"

Description The F/A-18A is a twin-engine, single piloted, supersonic strike fighter aircraft. The Hornet fulfills both air-to-air and air-to-ground mission requirements and can be operated from conventional and expeditionary airfields or from aircraft carriers. The F/A-18 incorporates state-of-the-art technology such as digital fly-by-wire flight controls, multimode radar and lightweight composites. An increased night and marginal-weather capability is currently developed in the F/A 18A/C. A two-seat version, the F/A-18D, will incorporate all the warfighting capabilities of the F/A-18C and will include a tactical reconnaissance capability.

Procurement Profile

Quantity	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
DON	662	84	72	72	72	72	72
USMC	189	23	32	25	24	24	24

Why is it Important? The F/A-18 provides a modern offensive and defensive antiair capability to the MAGTF. The F/A-18D will replace the RF-4B and the OA-4/TA-4. The F/A-18D provides the MAGTF with a platform capable of tactical reconnaissance and tactical air control while retaining the offensive and defensive antiair capabilities of the F/A-18A/C. Advanced avionics allow the pilot to accurately navigate to and strike or photograph enemy ground targets and to destroy enemy aircraft. The Hornet's versatility makes it deployable, sustainable, and effective across the spectrum of conflict. Increased operational reliability has improved the F/A-18 sortie rates while superior aerodynamic design, maintainability, and multi-mission capability make it particularly well-suited to the needs of the MAGTF in an austere expeditionary environment.

Program Status The 12 active Marine fighter squadrons will complete transition to the F/A-18 in FY-89. The first Reserve squadron will transition during 4th quarter FY-89 as the active force transitions to the night attack F/A-18C. The first squadron of F/A-18D will stand up during FY-90.

Developer/Manufacturer McDonnell Douglas

F/A-18 ATARS

Description The Advanced Tactical Reconnaissance System (ATARS) is a digital sensor suite designed to provide real time tactical intelligence. The ATARS suite will be comprised of low and medium altitude electro-optical sensors, an infrared sensor, tape recorders, and data link. The ATARS will be carried on the reconnaissance capable F/A-18D.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	—	—	—	—	—	15	14

Why is it Important? Timely, accurate intelligence is vital to a MAGTF commander. Since the MAGTF may be operating independently without access to other tactical, theatre or national intelligence gathering assets, it requires an organic tactical air reconnaissance capability. The ATARS equipped F/A-18D will allow day and night near real-time intelligence to be provided to the MAGTF commander. At this time, the RF-4B sensor suite accomplishes the reconnaissance mission but is becoming more difficult and costly to support as the F-4 is phased out of the Marine Corps' inventory. The F/A-18D equipped with ATARS provides the capability to accomplish reconnaissance taskings without dedicating an airframe solely to the reconnaissance mission. The Hornet, with ATARS installed, will still retain all its capabilities as a superior strike fighter with the exception of the nose gun, which will be removed for installation of ATARS during reconnaissance missions. ATARS digital imagery sensors significantly reduce the support required over film systems, thus reducing logistical and manpower burdens on the MAGTF.

Program Status The ATARS program funding is on track and provides for a total of 31 systems, the last two in FY-95. IOC is scheduled for FY-93.

Developer/Manufacturer Control Data Corporation

AV-8B "Harrier"

Description The AV-8B is a single seat, transonic, vectored-thrust, light attack aircraft, capable of increased payloads, range, endurance, and improved reliability and maintainability over the AV-8A. The V/STOL design gives it the capability to operate from a variety of land and sea based-air facilities. It is configured with the Angle Rate Bombing System (ARBS) which provides an extremely accurate first pass attack capability and high kill probability through the use of passive laser spot or TV tracking.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	212	24	24	24	—	—	—

Why is it Important? An expeditionary force like a MAGTF has limited assets of organic heavy artillery and tanks relying instead on its ACE to provide the required fire support. The V/STOL capable AV-8B is well-suited for providing dedicated close air support to Marine ground forces. Offensive air support aircraft requiring conventional airfields for take-offs and landings are limited by the proximity and availability of supporting facilities. The AV-8B offers a quantum leap forward in basing options. It can operate from ships as small as a LPH, from rapidly built expeditionary airfields, from forward sites like roads or temporary "V/STOL pads" as small as a 96 ft x 96 ft, and from conventional airfields. By forward siting and operating at shorter distances from the battle area, tactical air request response times are reduced.

Program Status Transition to an all V/STOL light attack force of eight operational squadrons and one training squadron is approximately 75 percent complete. Additional procurement will be required to sustain the force through the year 2000.

Developer/Manufacturer McDonnell Douglas

EA-6B "Prowler"

Description

The EA-6B is a four-place, twin-turbojet aircraft with a fully integrated, computer-controlled electronic warfare system. The aircraft is deployable from austere shore bases or aircraft carriers. The EA-6B's ALQ-99 Tactical Jamming System consists of on-board receivers and up to five externally-mounted Electronic Countermeasure (ECM) pods, and in combination with the Tactical Electronic Reconnaissance Processing and Evaluation System (TERPES), is capable of employing the AGM-88 High-speed Anti-Radiation Missile (HARM).

Procurement Profile

Quantity	Prior	FY-89	FY-90	FY-91*	FY-92*	FY-93*	FY-94*
DON	136	12	—	3	9	12	12
USMC	18	—	—	—	—	—	—

* Designates remanufacture vice new procurement. Distribution schedule of aircraft between Navy & USMC to be determined.

Why is it Importan.?

The Marine Corps requires the EA-6B tactical electronic warfare (EW) aircraft to protect and screen USMC offensive air support aircraft. This aircraft denies the enemy effective use of early warning, ground control intercept, surveillance/acquisition and terminal threat (gun & surface-to-air missile) radars. In addition to tactical battlefield jamming support, the EA-6B is essential to aircraft survival on the modern electronically-dominated battlefield.

Program Status

Under the current program, procurement of new EA-6B aircraft continues through FY-89. Marine Reserves are scheduled to receive six DON EA-6Bs in FY-92/93 bringing the USMC total to 24 aircraft. Beginning in FY-91 existing inventory (estimated to be approximately 109 aircraft in DON) will be remanufactured into the next version of the EA-6B, the ADVCAP or Advanced Capability "Prowler". The ADVCAP will provide a significant increase in all capabilities that make this aircraft so vital to the Marine Corps today. Current force levels, while providing a meaningful warfighting capability, are insufficient to support overall MAGTF requirements. Lack of new production coupled with attrition may jeopardize the Reserve transition to EA-6Bs and impact our airborne electronic warfare capability.

Developer/Manufacturer

Grumman Aircraft

KC-130T "Hercules"

Description The KC-130T is a multi-engine, land-based tanker aircraft which satisfies the Marine Corps' tactical air refueling requirement for both fixed-wing and rotary-wing aircraft. A more reliable and maintainable aircraft in comparison with its predecessors, the KC-130T is the newest model of the venerable KC-130 series and has much improved avionics, as well as a pylon mounted fuel capacity o[redacted]dditional 2,720 gallons of fuel.

Procurement Profile

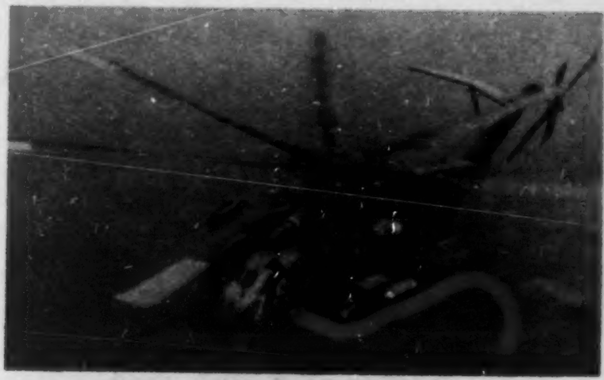
	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	16	2	—	—	—	—	—

Why is it Important? A tactical air refueler, like the KC-130, increases the endurance and range of aircraft providing the MAGTF commander with greater flexibility in assigning aircraft to missions in support of the ground scheme of maneuver. The KC-130 has a secondary mission of assault support to include the air transport of personnel, equipment, and supplies into expeditionary airfields. The KC-130 is an important link in the overall air support the ACE provides to the MAGTF. As more MAGTF aircraft become self-deployable using air refueling, new KC-130s are required to keep pace with emerging amphibious concepts and to meet the requirements of other expeditionary operations.

Program Status The Reserve KC-130T force modernization continues to be supported annually.

Developer/Manfuacturer Lockheed Aircraft Corporation

CH-53E "Super Stallion"



Description This 3-engine heavy lift helicopter is designed to lift 16 tons over a 50 nautical mile (NM) combat radius using a dual point pendant system. It has six 79-foot main rotor blades, a 20-foot diameter tail rotor that is canted 20 degrees, and a main gear box qualified to 13,140 shaft horsepower. This shipboard-compatible helicopter is an assault support aircraft that can be employed for the internal movement of cargo, the recovery of tactical aircraft, and the external lifting of weapons and equipment. It is the free world's largest helicopter.

Procurement Profile

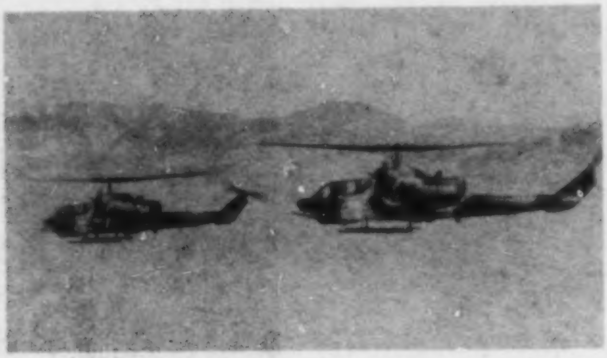
	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	95	7	3	—	—	—	—

Why is it Important? The CH-53E is the Marine Corps' only heavy lift support helicopter. The CH-53E, along with the MV-22 and the LCAC, forms the cornerstone of an assault support force required for the tactical movement of heavy weapons and equipment during over-the-horizon amphibious assaults, subsequent operations ashore, or during expeditionary operations. The CH-53E provides the ground combat commander the operational flexibility to reposition artillery and LAVs, recover heavy equipment and aircraft, and deliver supplies and fuel to forward sites. The ability to self-deploy by use of air refueling enhances its deployment capability in support of expeditionary operations.

Program Status Aircraft procurement throughout the FYDP reflects a 105 aircraft program to support six squadrons. Additional procurement will be required to bring the Marine Corps' total procurement to 191 aircraft to meet the minimum DON heavy lift requirements through the year 2000.

Developer/Manufacturer Sikorsky Aircraft

AH-1W "Super Cobra"



Description The AH-1W (formerly called the AH-1T+) is a two-place, tandem-seat, twin-engine attack helicopter capable of land or sea based operations. Its primary tasks are armed support for helicopter or ground operations and destruction of point targets/enemy armor. Since initial procurement in 1978, improvements to the Sea Cobra include, Night Vision Goggle compatible cockpit, Heads Up Display, crashworthy fuel system, and the capability to fire a variety of weapons to include TOW/ HELLFIRE (antiarmor), SIDEWINDER (antiair), and SIDEARM (antiradar). The aircraft incorporates the GE T-700 engine, which results in a quantum improvement in high/hot operations and safety of flight.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	78	—	—	—	—	—	—

Why is it Important? The AH-1W is the only Marine Corps attack helicopter. It fulfills the mission requirement to provide enroute protection to the assault force embarked in assault helicopters. Further mission requirements include landing zone suppression, close-in fire support, destruction of enemy armor, and point defense against enemy attack helicopters. The versatility of the AH-1 provides the MAGTF Commander with a significant force multiplier in both offensive and defensive ground combat.

Program Status FY-89 appropriated funds provide for the completion of the program procurement of site support equipment to include: a flight simulator, maintenance training equipment, publications, software support, and peculiar ground support (maintenance) equipment. In addition to the AH-1W procurement shown, 37 AH-1Ts are being converted to the more capable AH-1W during FY-88 through FY-93 bringing the total Marine inventory to 115 aircraft to support six active duty squadrons. Additional procurement is required to transition the two Reserve AH-1J squadrons to the AH-1W.

Developer/Manufacturer Bell Helicopter Textron

Hellfire

Description Hellfire is the primary antiarmor weapon system for the Marine Corps' AH-1W and the Army's AH-64. The 100-pound missile has a semiactive, laser terminal, homing seeker.

Procurement Profile

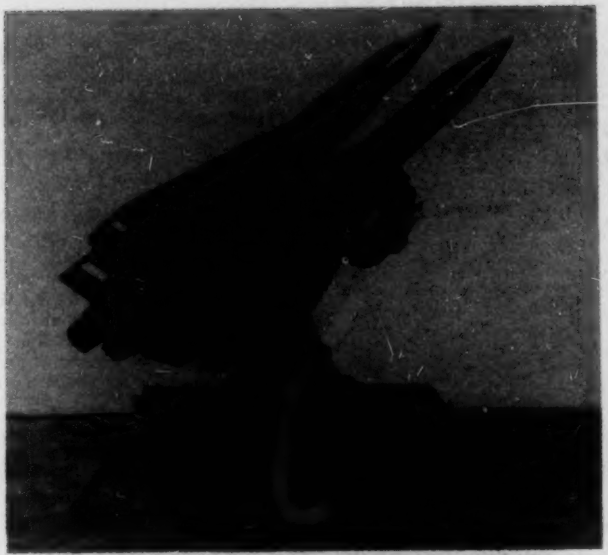
	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	1,962	1,000	1,098	1,198	1,034	2,500	3,150

Why is it Important? The employment of Hellfire is essential to the survivability of the Marine Corps' AH-1 helicopter on the sophisticated battlefield. Hellfire provides an increased standoff capability combined with a considerably improved kill potential over present antitank guided missiles. Hellfire's range of greater than 5,000 meters significantly exceeds TOW's maximum range of 3,750 meters. With the indirect fire and lock-on after launch firing modes, Hellfire does not expose the launch aircraft to the enemy during the missile launch and guidance sequence as TOW presently does. Hellfire's armor penetration/ kill potential is greater than that of TOW.

Program Status The Hellfire missile program successfully completed OPEVAL and initial deliveries of 500 production missiles have been made to the FMF.

Developer/Manufacturer Rockwell International/Martin Marietta

Hawk



Description HAWK is a semi-active, radar guided surface-to-air missile. It is designed for particular effectiveness at low and medium altitudes. The HAWK missile, which strikes at supersonic speed, is deadly against a full spectrum of hostile aircraft at all tactical speeds and altitudes. The system is mobile, helicopter-transportable, and designed to operate in an electronic countermeasures environment. HAWK is the organic weapon of the Light Antiaircraft Missile (LAAM) Battalion.

Procurement Profile

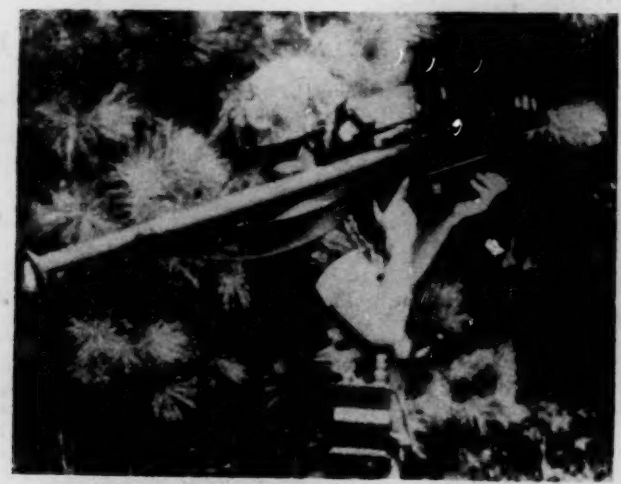
	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	3456	467	—	—	—	—	—

Why is it Important? HAWK is essential to the air defense of the MAGTF's vital areas. Mutually supporting weapon systems and destruction in depth of enemy air forces are required for effective air defense. HAWK is the only weapon of its type that has the vertical and horizontal range to meet the Marine Corps' need for a medium distance air defense system. It fills the gap between the short range Stinger missile and long range air defense aircraft.

Program Status The Marine Corps has programmed sufficient HAWK equipment to field a LAAM battalion in each MEF and the 4th MAW. During FY-89 through FY-92, the Marine Corps will implement the most recent upgrade to its HAWK assets by fielding a Phase III PIP. The Marine Corps supports procurement of sufficient numbers of HAWK missiles to ensure 60 days of supply.

Developer/Manufacturer Raytheon Corporation

Stinger



Description Stinger is a man-portable, visually-aimed, shoulder-fired, surface-to-air defensive weapon system designed to counter the low altitude air threat. The weapon can engage jet and helicopter aircraft from all firing aspects, including head-on. Stinger employs a passive infrared seeker and advanced guidance system which assures precision intercepts forward of the jet plume of high-speed aircraft. The Stinger system is designed to meet the air threat of the 1990s. It also incorporates an identification friend or foe (IFF) interrogator and advanced infrared countermeasures circuitry.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	8203	3115	—	—	—	—	—

Why is it Important? Stinger is essential to the air defense of the MAGTF. It is the short range component of the MAGTF's air defense system. Stinger's portability and simplicity give the MAGTF a mobile, ground-based air defense capability in the early stages of an amphibious operation or during sustained combat operations ashore. Its effectiveness is well documented in recent regional conflicts.

Program Status The Marine Corps' goal is procurement of sufficient Stinger missiles to ensure 60 days of supply. In the near future the Marine Corps expects to commence procurement of an improved version of the Stinger called the Stinger reprogrammable microprocessor (RMP). It will incorporate a number of improvements over the basic weapon system. Most notable will be the ability to track the ultraviolet as well as the infrared signature of the target aircraft.

Developer/Manufacturer General Dynamics. Second Source: Raytheon.

Lightweight Early Warning Detection Device (LEWDD)

Description LEWDD is a lightweight, man-portable, surveillance and detection device to alert and cue Stinger gunners to the approach of hostile aircraft. The Marine Corps seeks a nondevelopmental sensor which is simple and robust with the following capabilities:

-All-weather 20 kilometer coverage
-Man-portable subassemblies with a total combined weight of 200 pounds or less
-Vehicle or battery powered
-Setup time of five minutes or less

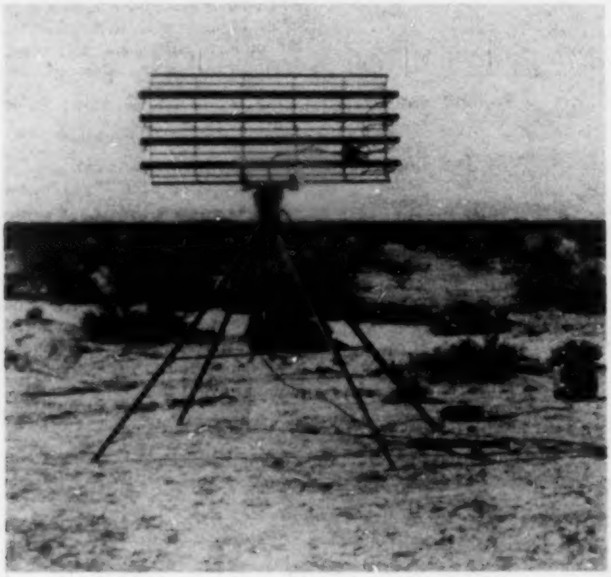
Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	—	10	10	42	39	—	—

Why is it Important? Stinger, while highly effective, is limited by the visual acuity of the gunner. LEWDD will correct this deficiency by allowing the detection of hostile aircraft beyond the eyesight of the Stinger gunner, thereby exploiting the inherent effectiveness of the Stinger missile itself.

Program Status Devices will be delivered in FY-89 for developmental and operational testing. Contract award for production quantities is expected in 2nd quarter FY-90. IOC will be in 1992.

Developer/Manufacturer TBD



Aviator's Night Vision Imaging System (ANVIS), AN/AVS-6

Description ANVIS is a third-generation image intensifier designed specifically for aviators. The system provides lightweight design, "look-around" peripheral vision, easy installation, and enhanced safety during night flight operations.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	2972	644	—	—	—	—	—

Why is it Important? The capability to fly at night is essential for combat operations on the sophisticated battlefield. ANVIS is the first night vision system designed specifically to provide helicopter pilots with the capability to fly at low altitude at night in a hostile threat environment. ANVIS will allow the MAGTF commander to more effectively utilize helicopters in support of the ground scheme of maneuver.

Program Status FMF introduction began in 1986. Full capability is expected by 1991.

Developer/Manufacturer ITT

Radar Warning Receiver, APR-39XE-2

Description The APR-39XE-2 is a joint Army/Navy/Marine Corps program to develop a lightweight, low cost radar warning receiver (RWR) for use on Army Special Electronic Mission (SEMA) aircraft and on all USMC Helo/OV-10/V-22 platforms. The system will integrate multiple warning systems to provide one standard display.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	—	—	—	115	139	233	162

Why is it Important? The APR-39XE-2 makes Marine helicopters, OV-10s and MV-22s more survivable against current and future threat systems by providing timely threat identification and location and by integrating multiple EW system displays and functions.

Program Status The program is in full scale engineering development. The first two engineering development models (EDMs) have been delivered, and developmental testing and operational testing (DT/OT) is being conducted on the AH-1W.

Developer/Manufacturer Dalmo Victor

Laser Warning Receiver, AN/AVR-2

Description The AN/AVR-2 is an Army lead, multi-service program to develop a laser warning receiver, which receives, processes and displays warning to the crew of aircraft illuminated by threat laser systems.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	—	—	42	90	91	60	38

Why is it Important? The number of lasers and guided weapons on the modern battlefield has continued to increase. The AVR-2 will interface with the APR-39XE-2 display to provide laser threat warning to Marine Corps AH/UH-1, and OV-10 crews, decreasing their vulnerability and increasing survivability

Program Status Operational evaluation has been completed on the AH-1J. Follow-on test and evaluation will be accomplished on the UH-1 and OV-10. A Milestone III production decision is anticipated in July 1989.

Developer/Manufacturer Perkin Elmer Optical Group

Missile Detection System, AN/AAR-47

Description The AN/AAR-47 detects incoming missiles and provides an automatic signal for ejection of expendable countermeasures (e.g., flares) to protect the aircraft. Aircrew are also provided indications of threat direction on existing aircraft warning displays.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	6	79	166	250	162	—	—

Why is it Important? The AN/AAR-47 will provide all Marine helicopters, the MV-22 and the OV-10 with the necessary protection to operate in a hostile environment now populated by a wide variety of diverse infrared surface-to-air missiles.

Program Status Sufficient AN/AAR-47 systems have been programmed to meet USMC helicopter, OV-10, and MV-22 requirements. The applicability of the AN/AAR-47 for high performance, fixed-wing aircraft is presently under evaluation.

Developer/Manufacturer Honeywell

Part 3: Combat Service Support Element (CSSE)

Introduction

The CSSE is a task organization tailored to provide that combat service support to the MAGTF which is beyond the organic capability of the GCE and ACE. Depending on the assigned mission, it is task-organized to provide any or all of the following functions: supply, maintenance, engineer, medical/dental, automated data processing, materiel handling equipment, personal services, food services, transporation, military police, disbursing and financial management. It is capable, to a limited extent, of providing smaller task organizations such as maintenance/supply contact teams for support of MAGTF operations as required.

The Marine Corps has several programs designed to improve the Marine Corps' capability to provide logistics support to the MAGTF commanders. A discussion of the most important of these programs follows.

Ground Ammunition Program

The Marine Corps' FY-90 ground ammunition budget request totals $222.4 million. The FY-90/91 program is broken down by ammunition category as follows:

Item	Funding Request ($ Millions) FY-90	Funding Request ($ Millions) FY-91
Artillery (155mm/8 inch)	48.6	40.8
Tank (M1A1)	39.3	54.9
Mortar	23.0	30.6
Small Arms	47.7	70.2
Other*	63.8	90.6
Total	$222.4	$287.1

*Includes pyrotechnics, grenades, fuzes, etc.

In keeping with DoD guidance, the Marine Corps program ensures readiness and sustainability. The current program provides for a balanced procurement of both war reserve and training ammunition to meet the needs of the Marine Corps within approved funding levels.

The M1A1 tank line consists of 120mm ammunition. The 120mm ammunition consists of a high explosive antitank (HEAT) M830 HEAT MP-T round and two target practice rounds, TP-T M831 and TPCSDS-T M865.

The mortar line consists of the 60mm illum and smoke WP rounds for the M224 LWCMS, and 81mm rounds for the new M252 mortar system.

The highlights of the artillery ammunition request are shown below:

Artillery Ammunition

	Quantity		$ Millions	
Item	FY-90	FY-91	FY-90	FY-91
155mm chg prop WB	34,700	118,529	2.8	9.7
155mm HE	258,445	—	38.0	—
155mm Dp ICM	7,925	12,215	5.9	9.1
155mm chg prop GB	35,106	84,936	1.9	4.5
8 inch HE	—	48,036	—	17.5
Total			48.6	40.8

Much of the currently programmed ammunition procurement is tied to the acquisition and fielding of new weapon systems. This fact is demonstrated below:

Item	New System	Quantity		$ Millions	
		FY-90	FY-91	FY-90	FY-91
81mm TP	M252	130,370	119,242	10.0	9.2
81mm HE	M252	8,739	14,559	2.3	3.6
60mm Illum	LWCMS	37,516	72,254	7.6	10.7
60mm Smk WP	LWCMS	20,344	7,633	3.1	1.2
120mm TP-T	M1A1 Tank	8,050	13,533	8.6	13.0
120mm TPCSDS-T	M1A1 Tank	13,782	27,629	9.6	18.7
120mm HEAT	M1A1 Tank	12,567	25,946	8.8	16.8
RKT 83mm HEAA	SMAW	7,865	7,318	22.7	22.3
RKT 83mm pract	SMAW	4,785	5,947	5.8	7.2
RKT 84mm	AT-4	3,706	3,707	3.4	3.4
Total				$ 81.9	$106.1

Viewed as an essential element of a balanced program, the FY-90/91 ground ammunition request complements the overall Marine Corps program.

Logistics Vehicle System (LVS)

Description The LVS consists of a front diesel-powered unit and four interchangeable rear units. It has eight-wheel drive and an automatic transmission. It is articulated, has a 60-inch fording capability without fording kit, and has 85 percent commonality with the Army's Heavy Expanded Mobility Tactical Truck (HEMTT).

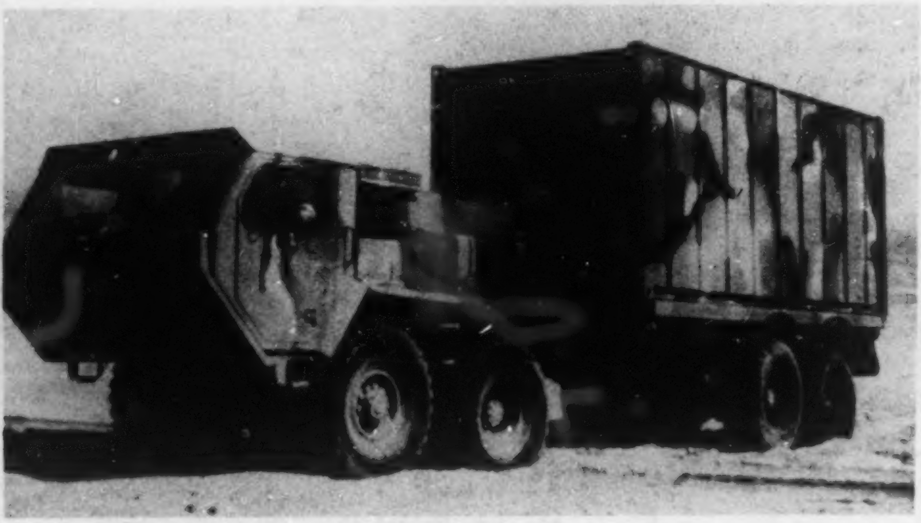
Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	3719	—	—	—	—

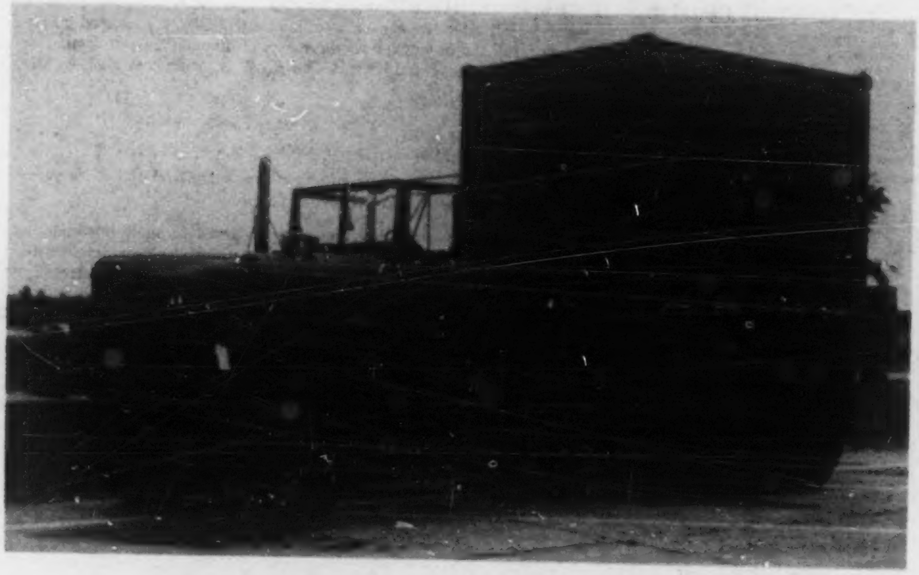
Why is it Important? The LVS is a family of combat support vehicles designed to replace overage, oversize, diverse and T/E deficient items with a tractor and four interchangeable rear body units (container and cargo trailers, recovery trailer unit and fifth wheel). LVS is air-transportable and its dimensional standardization permits container ship transport. LVS' design features provide enhanced cross-country mobility required to move weapon systems and logistics support for operating forces.

Program Status Initial fielding occurred in August 1985. IOC was achieved in September 1986. Currently developmental testing is underway at Aberdeen Proving Grounds, Md. for the MK 18. The MK 18 is the ribbon bridge/container transporter version of the LVS family. Production contract award for the MK 18 is expected during 4th quarter FY-89.

Developer/Manufacturer Oshkosh Truck Corporation



Electronic Maintenance Complex (EMC)



Description The EMC is a maintenance facility which provides an environmentally controlled work area for a variety of maintenance requirements. The EMC is comprised of an International Organization for Standardization (ISO) shelter, easily relocatable Internal Appointment Modules (IAM's) and a Standard Adaptation Package (SAP). The ISO shelter may be an 8'x8'x10' Electromagnetic Rigid shelter, or an 8'x8'x20' Rigid shelter. An EMC may consist of one shelter or two or more shelters complexed together to meet mission requirements.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	131	261	223	362	222

Why is it Important? The increased sophistication of currently fielded systems requires sophisticated mission support capability. The EMC will replace existing antiquated/obsolete maintenance facilities and provide housing for new maintenance support capabilities (Marine Corps Automatic Test Equipment System, Electro-Optics Repair Facility, Artillery Repair Facility, Electronic Calibration Facility, Mechanical Calibration Repair Facility, Electronic Test Measurement Diagnostic Repair Facility).

Program Status The EMC is currently on contract. First Article Testing (FAT) is scheduled to begin in April 1989. Delivery of production items is scheduled to begin in October 1989.

Developer/Manufacturer Brunswick Corp.

Stratified Charge Rotary Engine

Description The goal of the Stratified Charge Rotary Engine (SCRE) program is to develop a cost effective, extremely efficient, technically advanced power plant to fulfill the propulsion requirements of amphibious and combat vehicles in the 1990's and beyond. The AAAV is prime candidate for the SCRE.

Procurement Profile

	FY-91	FY-92	FY-93	FY-94
($ M's)	0	0	3.4	4.2

Note: The FY-93 and FY-94 procurement funds depicted above are currently contained in the AAV7AI PIP funding line.

Why is it Important? The SCRE program offers the opportunity to provide a multi-use family of internal combustion engines featuring highly efficient power/weight ratio, wider fuel cycle costs as compared to state of the art engines currently in use. The small package, high horsepower propulsion systems that will be derived from the SCRE program are essential requirements of many future DoD combat vehicle programs, including the AAAV program.

Program Status The SCRE progam, since its inception in 1985, has progressed to the point where FSD (Milestone II) is scheduled to commence during the 1st quarter of FY-90. The developer of SCRE is currently conducting contractor environmental and performance testing of prototype rotary engines.

Developer/Manufacturer John Deere Technologies International

Marine Corps Automated Test Equipment System (MCATES)

Description MCATES incorporates the necessary equipment, computer programs and associated documentation to enable automatic/semiautomatic testing and fault diagnosis of alectronic assemblies and subassemblies. In addition, MCATES provides for Test Program Sets (TPSs) development, verification/validation testing, revision/update and mangagement procedures. MCATES is comprised of two functional groups. The first group consists of the test head, instrument controller and associated General Purpose Electronic Test Equipment (GPETE), located at all intermediate level maintenance activities. The second group are a central host computer, digital test program generator, TPS programming stations, documentation station, configuration management stations, and verification/validation stations.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	97	109	—	—	—

Why is it Important? To successfully counter predicted threats, the Marine Corps must be capable of rapid response, organized and tailored to general or specific mission needs. The ability to communicate, maneuver, coordinate and direct fire on the enemy can only be assured if the sophisticated weapons and equipment employed by the FMF receive timely and efficient maintenance support.

Program Status A contract was awarded in August 1986 for the manufacture of programmable test sets. IOC for MCATES hybrid test station is scheduled for FY-91.

Developer/Manufacturer Various/Marine Corps

Fuel/Water Storage and Pump Modules (SIXCONs)

Description SIXCONs provide the capability to store and transport up to 900 gallons of liquid in a single module. The SIXCON pump module provides the capability to pump fuel or water from SIXCON storage modules at a rate of 125 gallons per minute. Each module has forklift tineways on all sides and can be helolifted or transported on trucks or containerships. With the advent of these modules comes a greatly increased capability and flexibility. Both fuel and water can be transported to forward elements of a MAGTF in variable quantities by the most effective means available on land or by air.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity		F W			
Fuel/Water Storage	1236/1148	564/216	-/-	—	—
Fuel/Water Pump	553/402	—	—	—	—

Why is it Important? The SIXCON modules were designed and are expected to fill the void left by the reduction in specialized tankers (M49/M50). The SIXCONs can be used individually or in combination of up to six modules (5 storage and 1 pump). They can be connected so that six modules form an 8' X 8' X 20' container.

Program Status The first contract award was in 1985. Water storage modules are loaded on MPS.

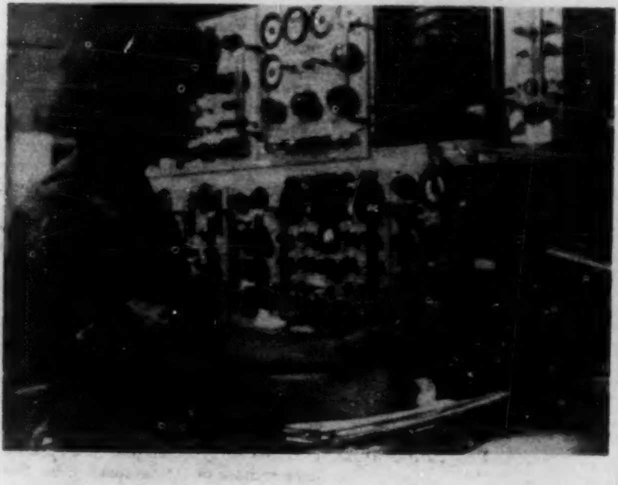
Developer/Manufacturer Isometrics, Peabody-Barnes

Chapter IV

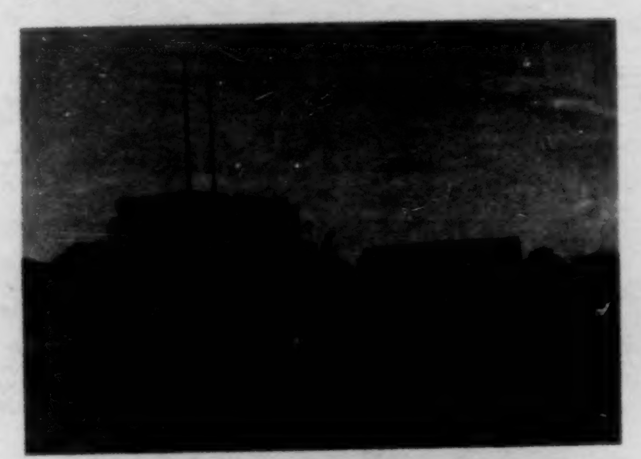
C^4 and Intelligence

Part 1: Command, Control, Communications and Computer (C^4) Systems

Introduction This section outlines command, control, communications and computer (C^4) systems intended to enhance the Marine Corps' capability to perform its assigned missions. The MAGTF has a unique C^4 capability. MAGTFs are organized, equipped and trained under the concept of unity of command, providing the commander complete control over all elements of the MAGTF. The MAGTF is equipped with the capability to provide austere external communications links with the Naval Telecommunications System (NTS), Defense Communications System (DCS) and adjacent U.S. or allied units.



Position Location Reporting System (PLRS)



Description PLRS is a joint USA-USMC program. A PLRS system network consists of a master station housed in a mobile shelter, a duplicate alternate master station and up to 370 basic user units, which may be man-, vehicle-, or aircraft-transportable. The master station consists of standard military computers and a tactical display. The hand-held user readout device displays position and navigation information or limited free text messages. PLRS is crypto secure, jam resistant, and will significantly enhance a commanders' versatility in tactical operations by providing accurate (15 meter circular error probable (CEP) for ground users, 100 meter CEP for air) position location of friendly units. Small units, vehicles and aircraft will be able to rapidly determine their positions, as well as those of other PLRS-equipped units during periods of reduced visibility and in featureless terrain. The master station automatically reports position location information throughout the PLRS network.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	6	1	2	—	—

Why is it Important? With the capabilities provided by PLRS, commanders at all levels will be afforded improved command and control of their forces with more accurate and timely position location of all user-equipped units.

Program Status With the Army as lead service, an initial sole source, 4-year contract for the purchase of 11½ systems (6 for the Marine Corps and 5½ for the Army) was awarded on 29 July 1983. The Army is modifying their equipment to enhance PLRS (E-PLRS). The Marine Corps total inventory objective is 9 systems (2 per MEF and 1 for software support and training). A second competitive contract will be awarded in FY-89 to complete attainment of the inventory objective. IOC was attained 1st quarter FY-89.

Developer/Manufacturer Hughes Aircraft Company

Digital Communications Terminal (DCT), AN/PSC-2

Description The DCT is a programmable, hand-held, input/output device that operates over tactical radio and wireline systems. The terminal enables the user to transmit and receive messages in short digital bursts which minimize detection risk by decreasing "on air" transmission time. The device weighs 4.5 pounds and is 100 cubic inches. The DCT allows the operator to rapidly compose, edit, transmit, receive and display preformatted, free-text messages and graphic data. The DCT will expand the capabilities of the following systems with its speed and accuracy:

- FIREFLEX
- Direct Air Support Center
- Command and Control communications for Low Altitude Air Defense (LAAD) Teams
- Tactical Warfare Simulation, Evaluation and Analysis Systems (TWSEAS)

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	1687	0	174	511	—

Why is it Important? The DCT represents a quantum improvement in speed, accuracy, and reliability of USMC tactical communications.

Program Status The second follow-on procurement contract to develop a second source will be awarded in FY-89. A competitive contract will be awarded to provide the remaining Army, Air Force, Navy and Marine Corps requirements.

Developer/Manufacturer TBD

Single Channel Ground and Airborne Radio System (SINCGARS)

Description	The SINCGARS family of VHF radios will replace most VHF/FM manpack and mobile tactical radio communications currently in the Marine Corps. SINCGARS will provide anti-jam communications in the frequency range of 30.00 to 87.975 MHz with 25 KHz spacing. It is mission-flexible for voice or data, plain or cipher text and remote control operation. Using the combination of low, medium or high power selections and a frequency hopping electronic counter-countermeasures (ECCM) capability, SINCGARS features a low electronic signature to elude current enemy DF equipment.

Procurement Profile

	Prior	FY-91	FY-92	FY-93	FY-94
Quantity	—	—	2634	7809	10,838

Why is it Important?	The Marine Corps is relying upon radio equipment which is over 20 years old and is difficult to support. The present VHF/FM radios are vulnerable to exploitation and interception and are severely degraded when operated in a jamming environment. SINCGARS will accommodate interoperability in joint and combined operations. The new model will offer optimum capability for secure voice communication with minimum weight.
Program Status	The Marine Corps is buying the integrated Communications Security (ICOM) version of SINCGARS, an improved model of the current radio. Testing is scheduled for FY-89/90.
Developer/Manufacturer	ITT and General Dynamics/Tadiran

AN/UYK-83
(Fleet Marine Force-End User Computing Equipment)

Description The AN/UYK-83 is a desk-top model computer which will serve as the Marine Corps' primary data entry device for all Class I Automated Information Systems and end user computing tasks. It will be used in both garrison and deployed environments. The system is ruggedized, electromagnetic interference (EMI) tested, and TEMPEST certified to meet the environment of all Fleet Marine Forces. The AN/UYK-83 hardware and software are compatible with the Zenith Z-150T, Federal Data XL, IBM PC/AT, and the Zenith Z-248 which are used in the supporting establishment.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	821	675	—	—	—

Why is it Important? The AN/UYK-83 will replace the functionally limited, technologically outdated ADPE-FMF minicomputers currently in the FMF and will provide improved capability in other mission critical computer functions not currently met by existing systems. It provides small organizations (battalion, squadron, and separate company) data processing support for Class I and IA software applications while deployed and/or in a combat environment. Additionally, it will support selected interfaces to military communications and command and control systems.

Program Status The AN/UYK-83 is in its first phase of fielding. Additional computers, in excess of those identified above, will be procured as funding becomes available.

Developer/Manufacturer C3 Incorporated

Tactical Communications Center (TCC)

Description

The TCC is a semiautomatic (computer assisted) tactical message center to be used at Division, Wing, FSSG and MEF/MEB headquarters. It provides for the receipt, storage, routing, distribution, reproduction and transmission of general service record traffic within a command post and to lower, adjacent and higher headquarters. The TCC will terminate data/teletype circuits to AUTODIN, the Naval Telecommunications System, local (within the command post) teletypes or end user computer terminals. It has the capacity to operate at selectable data rates of 75-2,400 bits per second.

The TCC consists of two major components; The AN/MSC-63A Communications Central and the Reproduction/Distribution Facility (R/DF). Each component can operate independently and is being developed and procured separately. Both components are housed in an 8'x8'x10' container. The AN/MSC-63A consists of off-the-shelf hardware items such as computers, video displays, teletypes, disk units, tape units, modems, and Communications Security equipment. The R/DF contains two commercial reproduction machines, a safe, shredder and printer. The printer can be electronically connected to the AN/MSC-63A.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	0	10	8	—	—

Why is it Important?

Current tactical communications center equipment is over 20 years old and is slow, unreliable and increasingly difficult to maintain. It is heavy for amphibious operations, will not interface with emerging digital transmissions systems and does not meet user throughput or maximum delay requirements for record traffic.

Program Status

IOC is scheduled for FY-91.

Developer/Manufacturer

AN/MSC-63A — Naval Oceans Systems Center (NOSC)
R/DF — Marine Corps Logistics Base, Albany

Troposcatter Radio, AN/TRC-170(V)3

Description The troposcatter radio will provide the capability for super high frequency (SHF) transmission and reception of both multichannel digital voice and data traffic. The AN/TRC-170(V)3 will be used at MEF, Division, Wing, and Force Service Support Group levels, providing intra-MAGTF communications, replacing the AN/TRC-97 and AN/GRC-201 radios. The AN/TRC-170(V)3 provides a significant increase in the capacity of bulk-encrypted voice, record and data traffic.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	—	—	28	26	41	24

Why is it Important? The AN/GRC-201 will not adequately accommodate the expected volume of traffic to be generated within an all-digital communication system. The new command and control equipment being procured will exceed the capacity of existing multichannel equipment. Further, the AN/GRC-201 is not compatible with digital switches now being fielded.

Program Status The Marine Corps is participating in this joint program with the Army and Air Force. The initial production contract was awarded in April 1982 and the equipment is now being used by the Air Force and Army. Marine Corps' IOC is scheduled for FY-93.

Developer/Manufacturer Raytheon and UNISYS.

Have Quick II Antijam Communications

Description

Have Quick is a UHF frequency hopping capability which is embedded in Marine Corps radios supporting air operations by providing voice communications with antijam protection. There are two current versions of Have Quick (Have Quick I and Have Quick II) with the principal difference being the allowable frequencies on which the radio hops. A third version, Have Quick IIA, is being developed to support data communications. Have Quick II-compatible radio equipment includes the AN/PRC-113, AN/VRC-83, and AN/GRC-171A(V)4.

- AN/PRC-113 AND AN/VRC-83: These are standard manpack and vehicular UHF radios which support close air support operations. All are Have Quick I capable and a modification program is underway to make them Have Quick II capable.

- AN/GRC-171A(V)4: This radio is used for voice communications between ground units and aircraft in flight. It supports Have Quick I and II operations and is the standard UHF radio for agencies within the Marine Air Command and Control System.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
PRC-113	1184	—	290	69	—	—	—
VRC-83	427	—	113	103	—	—	—
GRC-171A(V)4	64	—	—	—	—	—	—

Why is it Important?

Have Quick II provides reliable antijam UHF communications. Air to ground communications are essential for effective direct support of ground forces. Additionally, Have Quick II is the NATO standard and the Marine Corps must have it to be interoperatable with Allied forces.

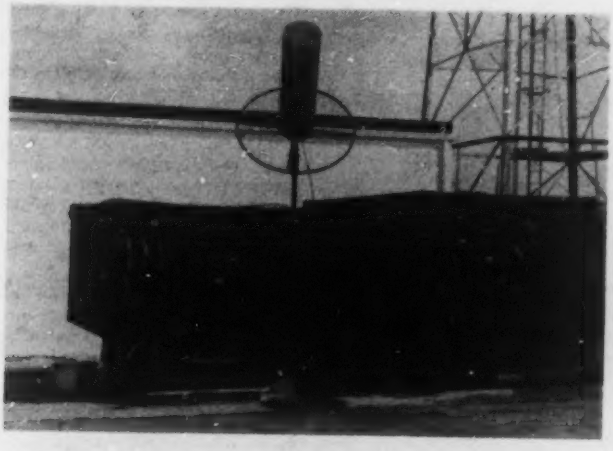
Program Status

The Have Quick program is an Air Force lead program with Navy and Marine Corps participation. The modification of the AN/PRC-113 and AN/VRC-83 is being performed by Marine Corps Logistics Base, Albany and should be completed by FY-90.

Developer/Manufacturer

Magnavox (PRC-113 and VRC-83)
Rockwell/Collins (GRC-171A(V)4)

AN/TSC-96 Product Improvement Program (PIP)



Description The AN/TSC-96 Satellite Communications (SatCom) Central is a UHF Satcom terminal which provides a deployed MAGTF with access to the Naval Telecommunication System (NTS) using the Fleet Satellite (FltSat) and Leased Satellite (LeaSat) constellations. The AN/TSC-96 provides access to the Common User Digital Exchange Subsystem (CUDIXS) net for record traffic, the secure voice net, fleet broadcast, and a low-speed teletype net. It is a high speed, dependable system which is terrain independent. The AN/TSC-96 terminals have been used extensively since 1981 and consist of naval modular automated communication subsystem (NAVMACS) components installed in two shelters. The Navy is making improvements to the FLTSATCOM system which we are installing in the AN/TSC-96 as a PIP to maintain interoperability. These include the Demand Assigned Multiple Access (DAMA) Secure Voice Modification, the NAVMACS/CUDIX DAMA modification, the AN/UGC-74 teletype replacement, and installation of the new DMC-122 satellite antenna.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	—	—	—	10	—	—

Why is it Important? The AN/TSC-96 allows real-time passage of critical information between command elements ashore and afloat. The Navy's schedule for full implementaiton of Secure Voice DAMA in FY-92 makes it imperative for the AN-TSC-96 to be modified to utilize the Secure Voice system.

Program Status The design engineering of the three modifications is in process at the Naval Electronic Systems Engineering Center (NESEC), Vallejo, CA. All 10 systems will be modified by 1st quarter FY-92.

Developer/Manufacturer Naval Electronic Systems Engineering Center (NESEC)

Communications Control (COMMCON)

Description

Marine Corps doctrine defines three specific areas which fall under the COMMCON "umbrella"; Systems Planning and Engineering, Operational Systems Control, and Technical Control. The COMMCON program mirrors these distinctions through the use of three subprograms.

The Systems Planning, Engineering and Evaluation Device (SPEED) is a fully integrated, microprocessor-based planning tool which performs a variety of functions for Marine Corps communications personnel. These include electromagnetic compatibility engineering analysis such as propagation path-loss predictions, determination of line-of-sight, and nomination of frequency assignments. SPEED achieves accurate, fast, and simple operation through a visual map monitor system (using standard DMA elevation and laser disc video map data) which integrates with menu-driven application programs.

The Operational Systems Control Center (OSCC) is a sheltered system which performs near real-time control of a deployed communications network. The OSCC assists in directive generation and transmission in response to network status.

The Portable Technical Control (PTC) System is a man-transportable, modular control unit which can monitor, analyze, and condition wireline transmission circuits. Two versions, an analog and a digital PTC, would be employed in a modular arrangement based upon mission requirements. Small size and flexible power source requirements ensure system availability.

Procurement Profile

TBD

Why is it Important?

The transition from an analog to a digital switched architecture, coupled with the fielding of a frequency hopping combat net radio will require automation of Communications Control functions. The SPEED, OSCC, and PTC meet these requirements while allowing for flexibility and future growth through evolutionary software development, use of NDI hardware, and highly transportable and portable/modular design.

Program Status

The first generation SPEED prototype (MICROVAX II based) was fielded in September 1988 to II MEF. An FMF-EUCE-based SPEED prototype will be fielded to all MEFs during FY-89. Prototype development for the PTC will begin during FY-89 with delivery of the first analog system the same year. The Marine Corps is presently monitoring other service efforts with OSCC programs.

Developer/Manufacturer

TBD

Fiber Optics Cable System (FOCS)

Description FOCS is a lightweight, EMP-hardened, tactical communications cable system developed to replace the copper cable system. FOCS will replace copper cables now employed with TRITAC and non-TRITAC communications equipment. FOCS operates over distances of six kilometers without repeaters. A FOCS system typically consists of two Converters and six 1 KM fiber optics cables. Test and Support equipment include the Test Set and Cable Repair Kit.

Procurement Profile

Quantity	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Fiber optics cable (1 KM)	—	270	237	237	237	240
Fiber optics cable (.3 KM)	—	152	1086	1088	1086	1089
Cable Repair Kit	—	24	24	24	24	26
Converters	—	630	658	700	615	364
Test Set	—	100	74	55	60	64

Why is it Important? Mission communications cannot be compromised since optical signals on fiber optics cables cannot be intercepted or detected without physically penetrating a cable. FOCs are immune to noise and are not susceptible to extraneous signals. Transmission quality is improved 4 times over cable. Handling and deployment problems are significantly decreased due to weight reductions of 75%. Inventory of cable types is minimized. Large cable bandwidth (400 MHZ) allows for future expansion (with improved hardware).

Program Status Contract award due 3rd quarter FY-89. IOC 2nd quarter FY-91.

Developer/Manufacturer TBD

Marine Flexible Fire Support System (FIREFLEX)

Description FIREFLEX will provide tactical control of Marine Corps digital artillery systems and manage associated digital fire support nets at battalion and higher levels throughout the GCE. FIREFLEX will be fielded at the Fire Support Coordination Center and Fire Direction Centers of the MAGTF. A suite of FIREFLEX equipment consists of a computer/communications terminal for the execution of current operations and a computer/communications terminal for fire support planning functions.

Procurement Profile TBD

Why is it Important? FIREFLEX is required to network existing digital artillery automated command and control systems (i.e., Battery Computer System (BCS), TPQ-36 (counter-mortar radar), and Meteorological Data System). These existing systems have created an unprecedented increase in the volume and nature of fire support information available to MAGTF commanders during operational planning and combat decision-making at the battalion level and higher. FIREFLEX enables Marine commanders to use this fire support information in a timely manner while significantly enhancing the communications record-keeping functions required within fire support agencies.

Program Status The Marine Corps intends to develop FIREFLEX using an evolutionary acquisition strategy working closely with the FMF. This evolutionary approach will maximize the use of non-developmental hardware and software to provide a basic (core) capability for the FMF. It will then be incrementally expanded in a cost-effective manner across the full spectrum of fire support functionality. The initial FIREFLEX solution must have the required growth potential to support this "building block" methodology. Currently, the Marine Corps is assessing two NDI candidate systems as well as the potential of the U.S. Army's AFATDS (Advanced Field Artillery Tactical Data System) to meet its basic fire support requirements. Contingent upon a Milestone II decision in FY-89 a testbed capability will be established in the FMF to support the acquisition process.

Developer/Manufacturer TBD

Tactical Air Operations Module (TAOM), AN/TYQ-23 V(I)

Description The TAOM is a joint Marine Corps/Air Force program designed to develop and produce operations modules which, when employed independently or in groups of up to five, provide for air defense and air traffic control and coordination as required by the MAGTF during combat operations.

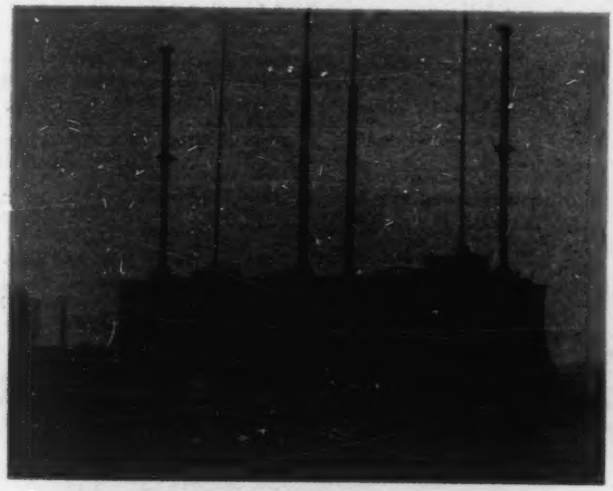
Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	16	12	5	5	8	1	1

Why is it Important? The TAOM program will replace aging equipment which is logistically unsupportable. The new equipment is modular and thus allows phased introduction of air control assets into a MAGTF area of operations. TAOM requires fewer technical personnel to operate and requires less strategic lift than the current system. It also offers training improvements at a reduced cost. Availability is increased due to improved system reliability and ease of repair. Each module will have the operational capabilities to perform all required air control functions on the modern battlefield. With the addition of identical modules, the MAGTF ACE can rapidly expand its capability to control and coordinate air operations.

Program Status Milestone IIIA was passed in December 1986. An FY-91 IOC is projected. Although recent budget decrements have extended TAOM procurement through FY-94, Service TAOM acquisition objectives (USMC-48; USAF-155) remain valid.

Developer/Manufacturer Litton Corporation



Advanced Tactical Air Command Central (ATACC)

Description ATACC replaces the current TACC equipment with easily transported shelters containing non-developmental operator consoles, large screen electronic displays, communications terminals, and semiautomated Air Tasking Order/Decision Support software.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Quantity	—	—	—	1	3	2	—

Why is it Important? The Tactical Air Command Center (TACC) is the senior Marine Air Command and Control System (MACCS) agency. The supervision and general control of all tactical air operations in the MAGTF area of responsibility are conducted in the TACC. The TACC also provides the Tactical Air Commander (TAC) with the facilities and means to direct and coordinate organic aviation assets with other services, and/or nations.

Program Status The system has completed Milestones I and II, and the Source Selection Process. The contract was awarded and prototype development began in 1st quarter FY-89.

Developer/Manufacturer Grumman Aircraft

Digital Wideband Transmission System Line-of-Sight Radio Subsystem, AN/MRC-139

Description The Line-of-sight Radio Subsystem will provide line-of-sight trunking between lower level command posts which are in relative close proximity (20-35 miles). The AN/MRC-139 will be used at the Division, Wing, Force Service Support Group, and MEF levels to provide intra-MAGTF linking of the digital switches. The AN/MRC-139 has a transmission capability of up to two 144, 288 or 576 kbps digital trunk groups and a secure orderwire.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	—	—	34	184	184	84

Why is it Important? The current analog AN/MRC-135A radio system is inadequate to support the digital switching systems (i.e., ULCS). The capability of these switches will be severely limited without the AN/MRC-139. Additionally, the AN/MRC-135, having been fielded in the late 1960s, is becoming increasingly difficult to maintain.

Program Status This program is a unilateral Marine Corps effort. Two contracts where awarded in October 1987 for EDMs. These systems will be sent to Fort Huachuca, AZ for operational testing in 2nd quarter 1989. The IOC for this system is scheduled for FY-93.

Developer/Manufacturer Canadian Marconi Company, Montreal, Canada and
Loral TerraCom, San Diego, CA

Joint Tactical Information Distribution System (JTIDS)

Description JTIDS will provide users with secure, jam-resistant, voice and data communications capabilities. When integrated into a host tactical data system, JTIDS will support high-capacity, near real-time exchange of tactical information and inherent relative navigation, position location, and identification capabilities. Associated with the implementation and employment of JTIDS is the parallel development of Tactical Digital Information Link-J (TADIL-J), a message standard being developed by the Joint Interoperability Tactical Command and Control System (JINTACCS) program.

Procurement Profile TBD

Why is it Important? Current data communications capabilities supporting tactical command and control information exchange are vulnerable to exploitation and interception and are severely degraded in a jamming environment. JTIDS and TADIL-J will overcome these deficiencies and provide tactical decision makers with survivable, secure, high-capacity communications capabilities.

Program Status The Marine Corps fully supports the expeditious achievement of a joint TADIL-J interface capability. The Marine Corps' JTIDS/TADIL-J program is designed as a comprehensive effort to provide tactical commanders with jam-resistant, high-capacity, voice and data communications. While the primary emphasis focuses on the TAOM implementation effort, follow-on platform implementations and Marine Corps-unique development efforts cannot be deferred without degrading the total capabilities of the integrated Marine Corps command and control system.

Developer/Manufacturer Singer-Kearfott
Hughes Aircraft Corporation

Part 2: Intelligence

Introduction

This section contains summary papers on the major Marine Corps intelligence system programs under development. These programs and the intelligence systems already fielded comprise the Marine Air-Ground Intelligence System (MAGIS). As new intelligence systems come under development and old systems are retired, MAGIS will continue to evolve.

These summary papers describe systems which will support the MAGTF commander in the areas of imagery intelligence (IMINT); signals intelligence (SIGINT), to include communications intelligence (COMINT) and electronic intelligence (ELINT); counterintelligence (CI); intelligence management at the MAGTF levels; EW; unattended ground sensor intelligence; and battlefield surveillance.

The systems described herein emphasize the coming of age of Marine Corps intelligence. This modernization effort uses state-of-the-art technology to provide near real-time intelligence information in response to the MAGTF commander's urgent intelligence requirements.

Joint Service Imagery Processor (JSIP)

Description The JSIP is a mobile ground processing facility designed to receive and exploit Infrared and Electro-optical (EO) imagery from tactical aerial reconnaissance systems. It will also receive and exploit imagery from national and theater sources. Product improvement options include a Common Radar Processor to process both tactical and theater radars, a National Input Segment, and a Mapping, Charting, and Geodesy Processor.

Procurement Profile TBD

Why is it Important? Current Marine Corps capability for processing and exploiting imagery is dedicated to hard copy (film based) products. The thrust of technology is to near real-time, soft-copy, digital imagery, which is data linked from the sensor platform to the processing facility. Soft-copy imagery exploitation allows the imagery interpreter to extract much more information than is normally attainable from film-based imagery. Data-linked digital imagery, soft-copy, computer-enhanced image exploitation and the increasing digital imagery expected to be available in the future, require that the Marine Corps move forward in the acquisition of a processing facility capable of deploying with the MAGTF. The Marine Corps will purchase six systems to replace the Imagery Interpretation Facilities at the three Force Imagery Interpretation Units.

Program Status Contract signed 14 August 1987 with E-Systems, Garland, TX to produce an EDM for delivery in FY-91.

Developer/Manufacturer E-Systems, Garland, TX

Integrated Signals Intelligence System (ISIS)

Description

ISIS is a modular, transportable, semiautomated system that will provide a modern and viable ground-based COMINT system as an integral part of combat intelligence operations. ISIS consists of two discrete functional capabilities – a front end collection and DF system known as the Communication Collection Outstation (CCO) and a back-end analysis, processing, data base, and reporting system known as the Technical Control and Analysis Center (TCAC) [previously known as the Stand Alone Analysis System (SAAS)]. The SAAS functions will be accomplished by procurement of the Army AN/TSQ-130V TCAC. The CCO collection and DF capability of ISIS will be satisfied by integration of off-the-shelf components into an integrated system.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity					
CCO	—	—	—	—	—
TCAC	5	—	—	—	—

Why is it Important?

With the advent of increased battlefield electronics and increased tempo of combat, the Marine Corps considers computer assistance to tactical SIGINT to be crucial to future Radio Battalion SIGINT support to MAGTF commanders. The Marine Corps has a vital requirement for near real-time tactical SIGINT support to the MAGTF commander.

Program Status

TCAC acquisition is being supported by a Congressional reprogramming action. Procurement contract actions will be performed by the Joint Tactical Fusion Program Management office. IOC is planned for 2nd quarter FY-89. In 1st quarter FY-89, a contract was awarded to develop three CCO prototypes. Upon successful completion of testing, the production options in the contract may be exercised to procure up to 24 CCOs.

Developer/Manufacturer

CCO - TBD
TCAC - RCA Corporation, Burlington, MA

Electronic Intelligence (ELINT) Support System (ESS)

Description	The ESS is an integrated ground and airborne based system to intercept, identify, analyze and locate hostile groundbased non-communications emitters. The system will provide the MAGTF elements with timely information pertaining to the disposition and status of hostile emitters within their tactical area of responsibility.
Procurement Profile	TBD
Why is it Important?	The FMF Radio Battalions do not possess the capability to perform collection or exploitation of ELINT threats. The ELINT system previously used by the FMF, the AN/TSQ-76, was issued on an interim basis pending development of an advanced system. It is obsolete in design, inadequate in frequency coverage, difficult to maintain, and lacks the mobility required to provide and maintain timely support to the MAGTF. Employment of the ESS will fill a gap in the Marine Corps requirement to provide tactical SIGINT support at battalion level and above.
Program Status	The Marine Corps is currently evaluating the technology of a Joint Service/NSA program for application to fulfill the ESS requirement.
Developer/Manufacturer	TBD

Advanced Marine Airborne Signals Intelligence (SIGINT) System (AMASS)

Description	AMASS will consist of an organic RPV-based airborne SIGINT package and a ground control and processing terminal. It will provide the MAGTF commander with the capability to detect, identify, locate and exploit, on a near real-time basis, enemy electromagnetic emissions that are a potential threat to combat operations and which are normally beyond the range of current ground-based SIGINT sensor systems.
Procurement Profile	TBD
Why is it Important?	Although the Marine Corps possesses a limited non-real-time ELINT capability in its fixed wing EW squadrons, the bulk of the cryptologic support to the MAGTF is provided by the Radio Battalions. AMASS will fill a critical gap by providing signals intelligence beyond the ranges now possible with ground based SIGINT collectors.
Program Status	The Marine Corps, Army and NSA are executing a joint program to integrate non-developmental items and technologies into an RPV platform to demonstrate the SIGINT applications. Once design efforts are completed, and flight tests are conducted, the Services will form a joint program office to transition the program into full scale development.
Developer/Manufacturer	TBD

Team Portable Communications Intelligence System (TPCS)

Description TPCS is a modular scalable team portable SIGINT system providing collection, analysis, reporting, and communications functions.

Procurement Profile

	Prior	FY-91	FY-92	FY-93	FY-94
Quantity	—	—	2	3	5

Why is it Important? TPCS is a continuation of current manpack receiver and DF system acquisition efforts and will fill a void in current SIGINT support efforts, especially in the initial phase of the amphibious landing. TPCS will provide flexible intra/intersystem communication and microprocessor terminals that will enable the Radio Battalions to provide timely and accurate tactical SIGINT support to the MAGTF commander. These systems will be deployed under a wide variety of conditions in support of operational requirements.

Program Status Prototype development is scheduled to begin in 3rd quarter FY-89. A production decision is expected in 2nd quarter FY-91.

Developer/Manufacturer TBD

Counterintelligence and Security Equipment (CI&SE)

Description The CI&SE program consists of three subprojects: Technical Surveillance Countermeasures (TSCM), Counterintelligence Equipment Program (CIEP), and the Counterintelligence Communication System (CCS). The CI&SE is designed to provide specialized material to FMF counterintelligence teams (CITs) to improve their capability to collect, analyze, and disseminate information, conduct counterintelligence operations, carry out the anti/counterterrorist mission and improve the quality of overall support to MAGTFs.

Procurement Profile

($000s)	Prior	FY-89	FY-90	FY-91	FY-92
TSCM	724	—	—	—	—
CIEP	—	—	OT&E	—	—
CCS	1215	—	—	—	—

Program Status TSCM: On-going NDI procurement. CIEP: Conducting Operational Test & Evaluation of candidate items for FY-90 procurement. CCS: Milestone III PDM, 4th quarter FY-87. IOC scheduled for 1st quarter FY-90.

Developer/Manufacturer TSCM: Various
CIEP: Various.
CCS: Naval Air Development Center, Warminster, PA

Mobile Electronic Warfare Support System (MEWSS)

Description The MEWSS is an electronic warfare system capable of rapid mobility over all types of terrain. The MEWSS electronic suite consists of a direction finder set, a jammer, and intercept receivers installed in a LAV chassis. The system is designed to provide MAGTF commanders with the capability to detect, determine Line of Bearing (LOB), and degrade enemy tactical communications during the amphibious assault and subsequent operations ashore.

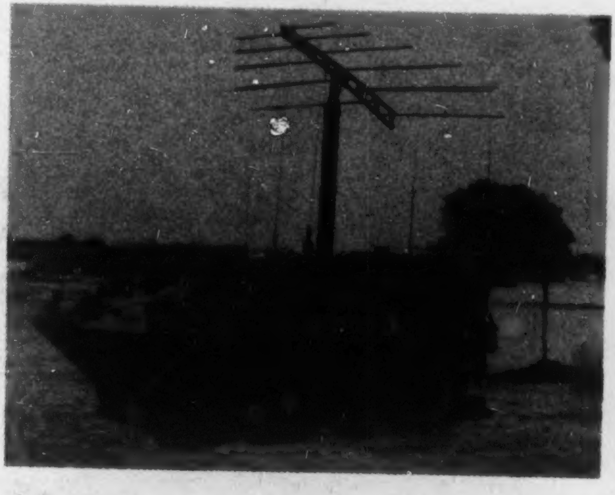
Procurement Profile

	Prior	FY-89	FY-90	FY-91
Quantity	12	—	—	—

Why is it Important? The Marine Corps currently has no light armored mobile electronic warfare capability. The MEWSS will provide the ability to support mobile operations, both in the Amphibious Objective Area (AOA) and during subsequent operations ashore.

Program Status System integration and operational testing was successfully completed in 4th quarter FY-86. Milestone IIIB was completed in 1st quarter FY-87. IOC is planned for 3rd quarter FY-89.

Developer/Manufacturer TACOM/General Motors Company, Ontario, Canada



Tactical Remote Sensor System (TRSS)

Description TRSS is a suite of unattended ground sensor equipment that provides the MAGTF commander with a state-of-the art electronic system capable of continuous, all-weather detection, location determination and monitoring of activity in the AOA. TRSS is comprised of hand and air emplaced remote sensors, transmitters, relays, data storage equipment and readout equipment. The remote sensor devices detect activity using seismic, magnetic, infrared and imaging technologies. The current set of sensor equipment, referred to as Phase III, is unsupportable and no longer a viable combat asset. The Phase V suite of replacement equipment will be in service in the 1990 – 1991 time frame. The goal of this modernization program is to upgrade the existing sensor capability with sensors that are smaller, lighter, and more cost effective by taking advantage of modern technology in micro-miniaturization and packaging techniques.

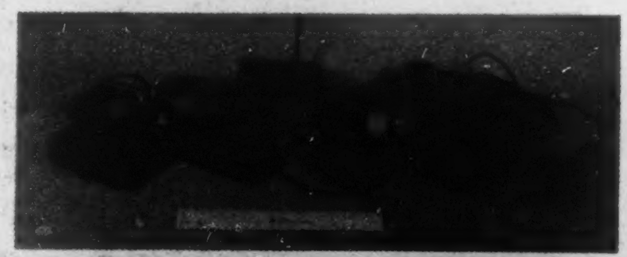
Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	—	—	—	1	—	—

Why is it Important? The TRSS Phase V PIP will sustain an existing combat capability by replacing obsolete and unsupportable equipment.

Program Status First Article Acceptance Test is scheduled for 2nd quarter FY-90 and first delivery of sensors will occur in 1st quarter FY-91.

Developer/Manufacturer Sandia National Labs, Albuquerque, NM
Naval Avionics Center, Indianapolis, IN



Hand Emplaced Remote Sensors

Air Emplaced Remote Sensor with a Portable Monitor

Communication Electronic Countermeasures (CECM)

Description The CECM projects will provide upgraded ECM capabilities by replacing aging VHF ECM equipment and acquiring UHF and HF ECM capable systems for the Radio Battalions. The VHF/UHF CECM system will be installed in either the HMMWV and/or UH-1/CH-46 helicopter to meet the MAGTF's requirements. The HF CECM system will be vehicle transportable.

Procurement Profile

	Prior	FY-91	FY-92	FY-93	FY-94
Quantity					
VHF/UHF CECM	—	—	6	9	9
HF CECM	—	—	—	4	4

Why is it Important? The CECM systems will provide the MAGTF commander the ability to conduct ECM operations in a sophisticated signals environment and at extended frequency ranges beyond current system capabilities.

Program Status The VHF/UHF CECM will be an NDI procurement. The contract is managed by the U.S. Navy for USN VHF/UHF CECM requirements. Options exist on the USN contract for USMC and USAF requirements. Request for Proposal (RFP) was released in the 4th quarter FY-88. Contract award is expected 2nd quarter FY-89. The HF CECM will also be an NDI procurement, following evaluation of current and projected NATO HF ECM tactical systems.

Developer/Manufacturer TBD

Tactical Electronics Reconnaissance Processing and Evaluation System (TERPES) AN/TSQ-90C

Description TERPES is a segment of the Marine Air-Ground Intelligence System (MAGIS). The system processes and identifies ELINT data collected from the EA-6B aircraft and correlates it with ELINT from the Tactical Receive Equipment (TRE) system. This data is fused with the Electronic Order of Battle (EOB) to provide enemy radar locations to the Command, Control and Intelligence (C2I) elements of the MAGTF. In addition the data provides EW mission planning and intelligence support to the ACE.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92
Quantity	5	—	—	—	—
Preplanned product improvements (P3I's)	IOC	5			5

Why is it Important? The EA-6B/TERPES is the Marine Corps' organic asset for processing tactical ELINT data. This data provides the MAGTF with ELINT and EOB information required to perform successful strike and HARM mission planning. The planned upgrades will provide a near-real-time processing capability of time sensitive intelligence to C2I elements during the 1990s.

Program Status The Phase II upgrade is a hardware and software modification with the critical element being the central computer. Phase II is nearing completion and is scheduled to deploy to Iwakuni, Japan in mid-1989.

Developer/Manufacturer COMPTEK Research Inc., Pacific Missile Test Center, Pt Mugu, CA
Naval Weapons Support Center, Crane, IN

Intelligence Analysis Center (IAC), AN/TYQ-19 Block Upgrade

Description The IAC is a vital component of the MAGIS. It processes information from imagery systems, signals intelligence, and airborne electronic reconnaissance from sources internal and external to the MAGTF. The resultant intelligence is presented to the tactical commander and disseminated as required. The bulk of the IAC's information is stored in the Naval Intelligence Processing System (NIPS) data base. NIPS will transition to the Defense Intelligence Agency's Integrated Data Base (IDB) by the end of 1990. The block 2 upgrade will field local area network-based microcomputer systems for echelons below the MEF, while the block 3 upgrade will consist of downsized versions of the existing IAC.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	6	—	—	—	—	—
Block 2 Upgrade	—	—	—	—	51	—
Block 3 Upgrade	—	—	—	—	—	3

Why is it Important? The present IAC is not well suited for deployment below the MEF level because of its size. The upgraded IAC will include versions which are deployable with the MEB and with the MEU. The IAC upgrade will use data from the IDB, will give it a mobility commensurate with the assigned unit, and most importantly, will extend an automated intelligence capability to organizations below the MEF level. The IAC must be upgraded to retain a national and joint (Navy) data base capability following the implementation of IDP in 1989-90.

Program Status The IAC Block Upgrade program is now completing the development of a prototype system for FMF evaluation. Three of these systems will be evaluated by the MEFs in 1989. The results of this evaluation will be used to develop an IAC Block 3 Upgrade system for fielding in FY-93/95.

Developer/Manufacturer Naval Weapons Support Center, Crane, IN

Chapter V

Manpower and Reserve Affairs

This chapter provides an updated status of our Manpower programs and a detailed report on the much improved posture of our Reserve component.

Part 1: Manpower

Introduction

Despite the allocation of significant resources to modernization programs, the Marine Corps has not neglected its most important asset - - the individual Marine and the Marine's family.

Our first priority continues to be the accession and retention of high quality individuals. Recruiting and retention statistics for FY-87 and FY-88 were favorable, however, given the projected decline in available manpower through 1993, perseverance in our recruitment effort is necessary. Continued success should ensure that the individual, combat-trained Marine remains our most valuable asset.

Quality of life (QOL) is the total of those factors which contribute to the standard of living for service members and their families. Such factors include, but are not limited to, the following which will be addressed in this chapter:

- Morale, welfare and recreation funds
- Family programs
- Military construction
- Bachelor enlisted quarters
- Family housing

End Strength The determination of military manpower requirements is a part of the continuous comprehensive requirements determination process based on the approved national strategy and Defense Guidance (DG). The analysis considers traditional functions and missions to determine a requirement for minimum risk. This minimum risk force is unconstrained by fiscal and manpower limitations. The minimum risk force is then refined to a planning force consistent with a reasonable level of risk. This planning force is judged capable of executing the Marine Corps mission for the national military strategy.

In recognition of existing fiscal constraints, the planning force, as a mid-range objective, is further pared down to the force levels required immediately for war. Such force levels comprise the programmed structure and provide the specific requirements for program development, as well as for measuring immediate readiness for war. The FY-89 defense authorization includes the resources for a Marine Corps end strength of 197,200. Our FY-90/91 budget submission requests the same end-strength.

The program was developed to first correct existing skill deficiencies and then to support improved manning levels by sustaining an aggressive recruiting and retention program which incorporates a relatively level non-prior service accession demand.

Summary End strength profiles are displayed in thousands below:

	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
Officer	20.1	20.1	20.1	20.1	20.1	20.1
Enlisted	177.1	177.1	177.1	177.1	177.1	177.1
Total	197.2	197.2	197.2	197.2	197.2	197.2

Recruiting

Present The Marine Corps continues on a steady and successful course of commissioning and enlisting young Americans of good quality. We again enjoyed unqualified success in FY-88 recruiting. As officer strengths remain relatively stable, only 1,854 new officers will be required in FY-89, 1,766 in FY-90, and 1,766 in FY-91. Similarly, only about 40,032 new Marines will need to be enlisted in FY-89, 39,752 in FY-90, and 40,412 in FY-91.

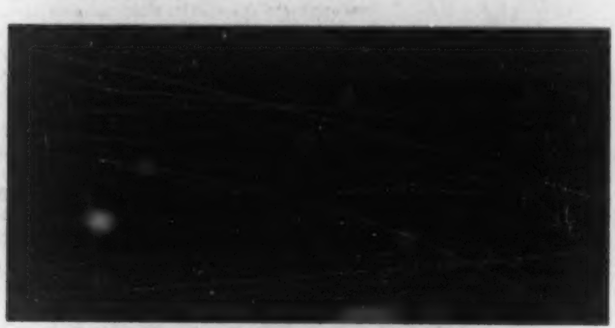
During FY-88, 1,767 lieutenants and warrant officers were accessed into the Marine Corps. We have maintained our high levels of quality for all officer accessions.

In FY-88, we enlisted over 44,000 young men and women into our Corps. We not only met this number requirement, but once again achieved all of our quality goals.

We enter FY-89 well poised to maintain our regular and reserve forces. Over 69 percent of the total enlisted force requirements are in the Delayed Entry Program (DEP). Additionally, over 94 percent of those in the DEP are high school graduates or seniors. To continue our recent success beyond 1989 will require the same dedication and commitment we have had in the past.

Future As we look to the future, the shrinking pool of military-age youth population, combined with increased competition from the private sector and a growing gap between military and private sector pay, pose recruiting challenges. The size of the youth population for military recruiting purposes is captured by estimating the Qualified Military Available (QMA) market through a process of elimination. QMA is generally defined as the number of 17 to 21 year-old males who are qualified for military service. The term "qualified" refers to the ability of an individual to meet the physical/medical, mental aptitude, level of education, and moral character standards as set forth by the military.

The graph reflects the critical decline in QMA through 1993 and subsequent upswing through year 2000. To respond to these increasingly difficult recruiting conditions, we must provide adequate recruiting resources and enlistment incentives for the Marine Corps. We are confident that, with these actions, we can continue to meet our manpower needs with volunteers.



Quality of Life

Manpower readiness and the well-being of our Marines are inseparable. The Marine Corps' high state of manpower readiness can be directly related to its long tradition of caring for its own. The term quality of life is a popular way to express all of those factors that contribute to a quality working and living environment for our Marines and their families. Quality of life programs enhance morale, help retain Marines, and lead to increased personnel and operational readiness.

Military Construction (MCON) In FY-90/91, the Marine Corps Military Construction fund request is $210.2 and $186.9 million respectively. The funding reflects a balanced program with projects distributed as follows:

	FY-90	FY-91
Operations and Training	23%	21%
Maintenance	39%	27%
Quality of Life (BEQs, community facilities)	26%	17%
Other (Supply and storage, Admin, Utilities and Real Estate)	12%	35%

In FY-90, maintenance projects represent the largest single category in the MCON program. This category is split almost evenly between aviation maintenance hangers and ground equipment maintenance shops.

Emphasis on quality of life projects remains high. In FY-90, this category includes two BEQs, two Child Development Centers (CDCs) and two messhalls. In FY-91, there are two more BEQs, another messhall and a clothing issue building.

Security consciousness in the Marine Corps is a key factor in protecting both Marines and our physical assets. As such, there are four flightline security improvement projects in FY-90. These projects are located at MCAS Pendleton, MCAS Cherry Point, MCAS New River and MCAS Tustin. These projects will improve security for the aircraft assigned to these activities.

Funding	**FY-89**	**FY-90**	**FY-91**	**FY-92**
($ Millions)	278.8	210.2	186.9	224.5

Bachelor Enlisted Quarters (BEQs)

The Marine Corps follows the DoD policy of providing suitable accomodations for all bachelor military personnel required to reside aboard the activity for military necessity, and for those personnel who reside aboard the activity when suitable accomodations are not available in the local community. Government quarters will not be built for officers and staff noncommissioned officers who are not required to live aboard for military necessity or for whom suitable private accomodations are available.

To implement this policy, we have programmed approximately 36 percent of our annual MCON budget for BEQs. With the completion of the FY-88 program, our inventory of adequate enlisted billeting spaces will be approximately 68,000 through new construction and modernization of existing quarters. Displayed below is the planned profile for this program:

	FY-89	**FY-90**	**FY-91**	**FY-92**	**FY-93**
Number of Adequate Spaces Planned to be Added During Year	3960	2040	1093	312	585
Cost of New Construction/ Modernization ($ Millions)	78.8	44.5	24.4	7.0	14.9

Family Housing

CMC has the management responsibility for approximately 20,000 family housing units and 875 mobile home spaces throughout the United States and Japan. We are continually building new units where deficits exist, particularly in southern California. During the period 1981-1988, 2,839 new family housing units were constructed, are under construction or have been approved. Additionally, 632 new units have replaced the aged inventory of Sterling Homes located near Camp Pendleton. This was a very special project in that we built strictly for privates through lance corporals. The construction program proposed for FY-90 includes building 112 housing units at MCB Camp Pendleton.

The major repair program has tremendously affected our homes by renovating our existing inventory. Whole house rehabilitation for over 8,000 homes has been conducted since FY-81. Plans exist for an additional 5,000 whole house rehabilitions in the next 5 years. Places such as Midway Park at Camp Lejeune, Ribout Village at Parris Island, Namar Housing at El Toro and housing at Cherry Point have been or are undergoing whole house repairs. These homes are exclusively used by privates through lance corporals.

The family housing improvement program also improves quality of life. Through this program, patios and dishwashers are being added to homes and athletic facilities are programmed.

Based on current known deficits, the Marine Corps construction program in numbers of units is identified below:

Activity	**FY-89**	**FY-90**	**FY-91**	**FY-92**
MCAS El Toro	100	–	–	–
MCAGCC 29 Palms	100	–	–	–
MCB Camp Pendleton	332	112	112	136
Total	532	112	112	136

The major repair program which is accomplished within the maintenance program will provide the needed renovations. Funds programmed for major repair projects are indicated below:

Funding	**FY-89**	**FY-90**	**FY-91**	**FY-92**
($ Millions)	23.5	26.7	24.6	26.0

Improvement programming is as follows:

Funding	**FY-89**	**FY-90**	**FY-91**	**FY-92**
($ Millions)	3.1	4.6	5.1	5.4

Morale, Welfare, and Recreation

In July of 1988, Morale, Welfare, and Recreation (MWR) functions at HQMC were consolidated under a single management directorate, the "Morale, Welfare, and Recreation Support Activity." This significant action will enable the Marine Corps to plan, manage, and deliver MWR programs in a more responsive, patron-oriented, and cost effective mode. Numerous benefits are expected to accrue, but most importantly commands will retain approximately 25 percent more of generated nonappropriated funds to support MWR programs, and commanders will have more authority and flexibility to manage. This Marine Corps initiative comes at an extremely propitious time given the capping of appropriated fund support to MWR in FY-89 at $30.4 million. Similar MWR consolidations, which are in compliance with Congressional guidance and sanctioned by the Department of Defense, will occur at major Marine Corps installations during FY-89.

Family Programs

We recognize that an increasing number of our Marines are married and have children. Our quality of life programs have gone beyond meeting the needs of Marines and reached out to the Marine Corps families. In the past 8 years, our family support programs have produced important results, such as better family preparedness for deployment, better special needs support and better family advocacy programs. Our employment assistance programs have added over $14 million to Marine family incomes. During this past year alone, 224,000 clients were helped by Family Service Centers and 4,000 children are currently receiving daily care through our child care programs. Our Marine Corps goal is a combat-ready force supported by families whose quality of life is equal to that of the Nation they defend.

Religious Programs

Chaplains provide comprehensive religious ministry to Marine commands implementing the constitutional guarantee of the free exercise of religion. They conduct divine services for their own faith group; faciliate religious opportunity and expression for faith groups other than their own; and provide pastoral care, ethical, and moral guidance for all. Implementing the command religious program, chaplains utilize their professional ecclesiastical background, military training and experience, and personal skills extensively. Beyond the obvious functions of worship service, scripture studies, pastoral counseling, space visitations, and field/deployment ministries; chaplains serving with Marines make a positive and lasting impact on the quality of life. Highlighting the chaplain's contribution to command includes cooperation in family support programs, participation with the Marines in community relations projects, directing values-oriented experiences, and proactive involvement in substance abuse prevention, pre-marriage preparation, and domestic wellness.

There are 301 Navy chaplains serving at all levels of the Marine Corps. They are supported by 256 Navy Religious Program Specialists (RPs) and 45 Marines who have had RP training. Additionally, 177 Navy Reserve chaplains support Marine Reserve units. Active duty chaplains in the Marine Corps accounted for 309,569 direct ministerial functions in FY-88. The goal of chaplains serving in the Marine Corps is to support the command mission through religious programs which meet the spiritual and moral needs of individual Marines in peacetime and in combat.

Marines in combat are confronted with tremendous uncertainty, fear, chaos, and stress along with the possibility of lethal trauma, disfigurement and death. Offering spiritual comfort to the wounded and dying experiencing pain and suffering has long been the hallmark of battlefield ministry. The chaplain shares the combat experience with the Marines and is available to minister to the psychological and spiritual needs of the troops in that environment. Stress, grief, and guilt in the aftermath of battle must be dealt with personally and collectively in order to prepare for the next phase of combat operations.

Part 2: The Marine Corps Reserve

Introduction

The international security environment and our budget situation require that the Reserve components of the Armed Services accept a larger role in defending freedom here and abroad. The Marine Corps Reserve is prepared for this challenge. The readiness and professionalism of the Marine Reserve has been demonstrated time and time again "in every clime and place." Since its establishment, the Marine Reserve has served as a full and active partner in our Total Force.

Charged with providing the means for rapid expansion of our Corps during a national emergency, the U.S. Marine Corps Reserve is the underlying foundation for sustainability upon mobilization. With trained units and qualified individuals on call to rapidly augment and reinforce Active Forces in response to crises, the U.S. Marine Corps Reserve provides a valuable dimension of the Total Force policy.

The organization of the Selected Marine Corps Reserve (SMCR) as a Division, Wing and Force Service Support Group capable of providing trained units to the Active Force provides unparalleled flexibility in employing Reserve assets. Similarity of Reserve and Active Force structures greatly enhances and streamlines the process of integrating reservists into the Active Force during mobilization.

Training, Readiness and Support of the Active Forces

Aggressive and extensive training programs are conducted within the Marine Corps Reserve for the purpose of enhancing its warfighting capability. Training is directed at both the SMCR and Individual Ready Reserve (IRR) to ensure trained units and individuals are available upon mobilization.

Participation in unit exercises is critical to mobilization readiness. These exercises are a culmination of MOS training, professional education, and small unit training conducted throughout the year. Exercise participation affords reservists the same type of opportunities as their regular counterparts to develop and maintain combat skills.

The 4th MarDiv, 4th MAW and 4th FSSG maintain an active exercise cycle which each year includes two combined-arms exercises (CAXs) and battalion or larger size cold weather, mechanized, amphibious landing, mountain and artillery fire exercises. Emphasis is placed on maximum participation in integrated exercises; i.e., those which involve both Active and Reserve component units, in order to increase the integration and interoperability of both components. A 5-year plan has been developed by the SMCR in conjunction with the force commanders to increase SMCR unit participation in Active component exercises.

During 1988 over 25,000 selected reservists participated in major exercises within CONUS and abroad. Many of these were integrated with Active component forces; e.g., Alpine Warrior (Wisconsin), Display Determination (Mediterranean), Freedom Banner (Philippines), Kernal Blitz (California), LOGEX-88 (Virginia), Ocean Venture (Caribbean), Team Spirit-88 (Korea), Teamwork-88 (Norway), Valiant Blitz (Korea), Red Flag-88 (Nevada), and Cold Winter (Minnesota). Exercises in FY-89 will include two CAXs and other exercises including: Alpine Warrior (Wisconsin), Bright Star (Mediterranean), Cold Winter (Minnesota), Cobra Gold (Thailand), Solid Shield (North Carolina) and Team Spirit (Korea).

Active and Reserve training integration will continue to increase as the Designated Augmentation Unit program is implemented. This program features 16 Reserve infantry companies assigned for mobilization purposes to Active component infantry battalions in order to provide a fourth maneuver company. Several units will begin training with gaining battalions in FY-89 during battalion deployments.

During FY-88, 3d and 4th Air/Naval Gunfire Liaison Companies (ANGLICOs) in the Reserve component participated in several joint/combined Active component exercises in and out of CONUS to meet exercise augmentation requirements. Additionally, 3d and 4th Civil Affairs Groups (CAGs) provided support during joint and joint/combined exercises in FY-88 such as Celtic Cross, Cobra Gold, Balikatan and Bear Hunt. The 4th MAW provided air-to-air refueling support for Active and Reserve operations, including exercise Alpine Warrior-88 and supported parachute operations for U.S. Navy Sea-Air-Land (SEAL) Teams in California.

Participation in the Marine Corps Combat Readiness Evaluation System (MCCRES) is an important feature of the SMCR training program and is one method used to evaluate combat readiness. Reserve units are routinely assessed with the same criteria used to evaluate their Active component counterparts. During FY-88, 11 battalion/squadron size SMCR units were administered the MCCRES, and each was evaluated as combat ready. The FY-88 results are especially significant when one considers the limited time available for Reserve unit training.

Unique to the Marine Corps Reserve, SMCR units are administrered Mobilization Operational Readiness Deployment Tests (MORDTs) to assess their capability and readiness to mobilize. Administered by Reserve inspection teams, no-notice MORDTs entail recalling the entire unit and packing and staging all equipment and supplies for embarkation aboard military or commercial transportation as well as frequently deploying to a distant military installation. Of the 88 SMCR units tested in FY-88, 96 percent were evaluated as ready.

The activation of VMFT-401 at MCAS Yuma, Arizona, is an especially significant example of reserve support for the Active component. Manned by Reserve Marines, this 4th MAW squadron is currently equipped with leased F-21A Israeli KFIR fighter aircraft, although initiatives are being pursued to replace the F-21As with fourth generation supersonic aircraft. The squadron provides training for squadrons in both components in adversary flight tactics.

Budget The Reserve Biennial 90/91 budget request for $396.6 and $417.1 million respectively, will support both enhancement initiatives and an SMCR end strength of 43,956 in FY-90 and 44,056 in FY-91. This funding represents about 4.0 percent of the total Marine Corps budget in both years.

Significant programs included in the FY-90/91 Reserve budget are funding to support the recently activated KC-130T and AH-1J squadrons, 4th LAAD and 4th LAAM antiair defense units, and Full-Time Support strength increases of 356/100 for FY-90/91, respectively, including instructors to support Marine Battle Skills Training.

Conclusion The Marine Corps Reserve is a vital dimension of the Corps' Total Force. High morale and the dedication of its Marines are major strengths. Requirements to improve present and future capabilities have produced some crucial objectives, primarily in manpower and equipment. The approach towards achieving these objectives can be summarized in a three-pronged strategy:

- First, to continue with substantial efforts in **recruiting, training**, and **retaining** quality Marines.
- Second, the momentum of force **modernization** must continue. State-of-the-art equipment and modern training facilities are extremely important.
- A final key to enhancing Reserve capabilities is continued emphasis on Active/Reserve **integration.**

Total Force, with separate but complementary Active and Reserve contributions, is an established reality in the Marine Corps.

Chapter VI

Training

Introduction

The Marine Corps has established a Marine Air-Ground Training and Education Center (MAGTEC) at Quantico to provide more effective management of Marine Corps training as a total system. The MAGTEC is chartered to develop policies and programs for the training and education of active regular and Reserve Marines. This responsibility includes:

- All management and direction of formal schools, professional military education, training programs and initiatives
- Training analysis
- Publication and evaluation training standards for all categories of training conducted in Marine Corps units and institutions
- Allocation and management of training resources to achieve maximum training effectiveness

Marine Corps training programs continue to be realistic, innovative, and performance oriented. To accomplish this goal, the Marine Corps will participate in 190 joint, active and reserve exercises in FY-89.

The Marine Corps has increased the number of units participating in training exercises and made the scenarios more realistic. Commanders will be able to evaluate their unit's performance and the effectiveness of their contingency plans in realistic weather, terrain, and threat situations.

MCAGCC, Twentynine Palms, CA, has the mission to conduct realistic training in the integration of supporting arms and to evaluate the combined-arms capabilities and readiness of all MAGTF elements.

The "Combined-Arms Exercise" (CAX) has been developed to specifically support MCAGCC's mission. The standard scenario contains an enemy equipped with current Soviet weapons and employing Soviet doctrine. Although the sequence and circumstances vary, standard events for a CAX are: (1) command post displacements; (2) deliberate attacks on fortified positions requiring combined-arms fire support; (3) a night helicopterborne assault of company size; (4) development of barrier and defensive fire plans; (5) the use of MILES gear for force on force training that aligns the CAX with combat situations; and (6) the use of "frag" orders after the first day that reflect intelligence input and evaluation.

Ten CAXs, ranging in size from battalion to brigade, are conducted at MCAGCC each year. The Mojave Desert provides a realistic training area for free maneuver and the use of all types of live ordnance during the exercises. The free maneuver and live fire used during CAXs provide a realistic test lab for operational testing of units and equipment. Lessons learned are incorporated in doctrine, tactics and equipment.

The Marine Corps Mountain Warfare Training Center (MCMWTC) in Bridgeport, CA is an ideal location to train for our strategic roles in northern Europe and the western Pacific. 12,000 Marines are trained annually in mountain warfare and cold weather operations.

Each year, Marines participate in joint or combined training exercises around the world. These include Teamwork, Northern Wedding/Bold Guard, Bright Star, Big Pine, Team Spirit and Display Determination. These training exercises have been successful and have strengthened our joint and combined operations capability.

The Marine Aviation Weapons and Tactics Squadron-1 (MAWTS-1) at Yuma, AZ, provides standardized advanced training in all aspects of the employment of Marine aviation. MAWTS-1 conducts the semiannual Weapons and Tactics Instructor (WTI) courses which provide extensive training for 140 aircrews and aviation command and control officers. These officers return to their units and establish a cadre for unit training programs. In addition, MAWTS-1 provides training for over 3,000 aviation personnel in supplemental courses each year.

Recruit training remains the fundamental element of our success and is the first step in a program designed to develop the individual Marine. Recruit training provides a series of demanding but attainable performance requirements which each recruit can identify and master. We require the highest standards of performance and conduct from our drill instructors.

These are but a few of the items and support elements which make up our training system. This chapter presents several issues of importance to the development of the Marine Corps training program.

Tactical Decision Making Aids

Description The Marine Corps continues to develop and field a variety of tactical decision making (TACDM) training materials and simulators to complement traditional unit and formal school training.

The Tactical Warfare Simulation, Evaluation and Analysis System-Integrated Maneuver Controller (TWSEAS-IMC) project provides new software to closely simulate ground, air, support, and service support combat operations. The TWSEAS-IMC will control integrated field and map exercises of FMF units. It will also execute four simultaneous command post exercises for the formal schools. A major hardware upgrade in conjunction with IMC provides remote terminals for the reserve and active units not equipped with full TWSEAS suites.

An initial Combined-Arms Staff Trainer (CAST) was developed to support CAX fire support planning and coordination training. The CAST consists of a terrain model, a target designator, and a communication system which replicates MEB tactical communication nets. Four additional CASTs will be placed in the FMF.

Funding Profile

($ M's)	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
TWSEAS-IMC	6.93	1.30	–	–	–	–	8.04
CAST	1.90	3.10	3.13	–	–	–	–

Why is it Important? Each device provides the commander with an alternative method of training and exercising his commanders and staffs in planning, controlling and executing critical combat functions.

Program Status The remaining TACDM acquisitions have an IOC of FY-89. The CAST delivery schedule extends to FY-92 for the various FMF sites. The FY-94 profile is for the III MEF TWSEAS-IMC suite.

Marine Battle Skills Training (MBST)

Description

MBST is a comprehensive overhaul in the way we train individual Marines. MBST ensures that every Marine, regardless of MOS or unit, will be able to serve in a rifle squad in combat operations when necessary. MBST is a comprehensive training process dedicated to the development and sustainment of basic combat infantry skills for all Marines. It focuses on extensive firing of individual and crew-served weapons, basic knowledge of field skills, participation in rugged battle drills, and combat oriented physical conditioning. The program is organized into four progressive, mutually supporting stages covering all essential combat training for Marines throughout their careers.

Stage I:	Basic Warrior Trianing (BWT):	MCRDs
Stage II:	Marine Combat Training (MCT):	Schools of Infantry (SOI)
Stage III:	Marine Leader Training (MLT):	NCO Basic Courses and Staff NCO Academies
Stage IV:	Unit Sustainment Training (UST):	All commands

Funding Profile

	Prior	FY-89	FY-90	FY-91
($ M's)	3.85	9.12	9.87	10.17

Why is it Important?

MBST will provide a significant increase in combat skills throughout the Marine Corps. No matter what the combat environment, MBST will allow all units to defend themselves. MBST will provide a higher baseline of combat skills. Commanders can then train Marines of all occupational specialties for specific missions instead of spending an inordinate amount of time training and retraining general combat tasks.

Program Status

a. Stage I, BWT:
Modified POI implemented February 1988; validation and evaluation presently underway; final changes to occur by March 1989.

b. Stage II, MCT:
Small group trials began in October 1988; validation and evaluation presently underway; full implementation to begin in June 1989.

c. Stage III, MLT:
Program is being developed for the NCO basic courses; SNCO academies are presently conducting validation and evaluation and should be fully implemented by February 1989.

d. Stage IV, UST:
Program still in conceptual stages; plan to implement during FY-90.

6-5

Weapon/Equipment Simulation Devices

Description

These devices provide realistic substitutes for actual equipment, weapons and ammunition:

Precision Gunnery Training System (PGTS).
PGTS will simulate DRAGON and TOW missile firing and tracking. It will provide immediate feedback on the gunners performance and will enhance proficiency when firing live missiles. We are planning for a total of 253 PGT systems, and when delivered in FY-90, a vital need will have been satisfied.

Remoted Engagement Target System (RETS).
RETS is a controlled system of moving and stationary personnel and antiarmor targets which provides target array and gunnery effect.

Moving Target Simulator (MTS).
MTS will provide precision gunnery training for up to three Stinger gunners in a simulated close-in air defense environment.

Unit Conduct of Fire Trainer (UCOFT).
UCOFT is the MIAI tank trainer. We are buying four trainers for the active forces.

Marine Corps Tank Full Crew Interactive Simulator Training (MCTFIST).
MCTFIST provides the Marine Corps Reserve the capability to gain and sustain tactical gunnery proficiency and related skills through simulation of tank combat scenarios.

Combined-Arms Exercise (CAX) Targets.
CAX targets can be programmed and are fully automated, realistic threat armor and infantry presentations for combined-arms exercises.

Light Armored Vehicle (LAV-25) Training System.
The LAV-25 training system consists of two devices, the Turret Trainer (TT) and the laser Substitute Firing Device (SFD). It will train LAV-25 crews in precision gunnery and tactical distribution of fire at the School of Infantry. The system is expected to be installed and functioning at MCB Camp Pendleton during FY-89.

Funding Profile

($ M's)	Prior	FY-89	FY-90	FY-91	FY-92
PGTS	1.86	4.60	–	–	–
RETS	1.99	0.25	1.06	1.06	–
MTS	1.5	–	–	–	–
UCOFT	3.9	–	–	–	–
MCTFIST	1.6	–	–	–	–
CAX TARGET	2.79	0.93	–	–	–
LAV-25	1.7	–	–	–	–

Why are they Important?

Weapon and equipment simulation devices allow Marines to develop specialty skills before transitioning to full task training with real equipment and live ordnance. This approach not only reduces equipment wear and ammunition expenditure, but also allows Marines to practice critical tasks quickly and safely through repetition.

Multiple Integrated Laser Engagement System (MILES)

Description MILES is a family of low-power, eye-safe, lasers which simulate direct fire characteristics of infantry assault weapons, mechanized crew-served gunnery and air defense weapon systems.

Funding Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93	FY-94
($ M's)	7.26	–	–	–	8.05	5.04	2.02

Why are they Important? Combat environment simulation devices add realism to training and allow Marines to experience situations which closely resemble the conditions in which they will fight. Peacetime validation of doctrine, tactics and techniques is a natural consequence of using such devices.

Program Status MILES is a continuing program since sufficient devices must be acquired to support force on force training in the FMF.

School of Infantry

Description The objective of the School of Infantry is to formalize the courses of instruction for infantry entry-level and skill progression training. Additionally, the SOI is charged with the conduct of the Marine Battle Skills Training program, the most important training effort in the Marine Corps. The Marine Corps has two schools, one located on each coast. Training at the schools incorporates the MBST program for all male Marines, entry-level MOS courses, and Squad Leader (sergeant/corporal) and Platoon Sergeant (staff sergeant) courses, designed to provide important management, supervisory, and leadership skills to our infantry leaders. The construction of an advanced infantry instructional facility is complete and supports the Squad Leader and Platoon Sergeant courses. The procurement of weapons and equipment to support the additional requirements is ongoing.

Funding Profile

	Prior	FY-89	FY-90	FY-91	FY-92
($ M's)	9.96	3.86	3.92	3.92	3.92

Why is it Important? Formerly, the infantry occupational field had no formal skill progression training. FMF commanders provided this training by using their operational assets. A school for infantrymen provides the Marine Corps with a method to address present and future training requirements. New weapons, communications systems, and combat support equipment have made formal standardized skill progression training for infantrymen a necessity. The Squad Leader and Platoon Sergeant courses provide follow-on infantry instruction needed by Marine leaders at the squad and platoon level.

Program Status The Squad Leader and Platoon Sergeant courses are in operation. The MBST program is on track.

Chapter VII

Naval Support and Programs

Introduction

This chapter contains a series of program summaries and point papers that focus on naval support requirements for amphibious power projection, an overview of the amphibious lift required to support this Nation's Maritime Strategy and MAGTFs and medical support for amphibious operations. Navy support programs are critical to the Marine Corps' expeditionary capability.

Maritime and Geographical Prepositioning

The Marine Corps has enhanced its expeditionary readiness through an energetic prepostitioning program, now becoming fully operational. The maritime prepositioning program consists of three fully operational maritime prepositioning forces (MPFs). The geographical program, referred to as the Norway Air-Landed MEB (NALM) program, will achieve its IOC by December 1989. This section summarizes the unique composition and tailoring of the two programs, contains information on equipment maintenance, and highlights a few of their deployment capabilities.

An MPF is comprised of a command element, a MEB, and an MPS squadron loaded with most of the MEBs combat equipment and about 30 days of supply and a Navy Support Element. The MPF concept gives the Marine Corps a response capability unparalleled in the world. A 16,500-man, armor-heavy fighting force can be deployed to vast reaches of the globe, offload its equipment and supplies, assemble and be prepared for combat in a matter of a few days. It triples the Fleet Commander's ability to employ Marine Forces and does so with a modicum of strategic airlift and sealift.

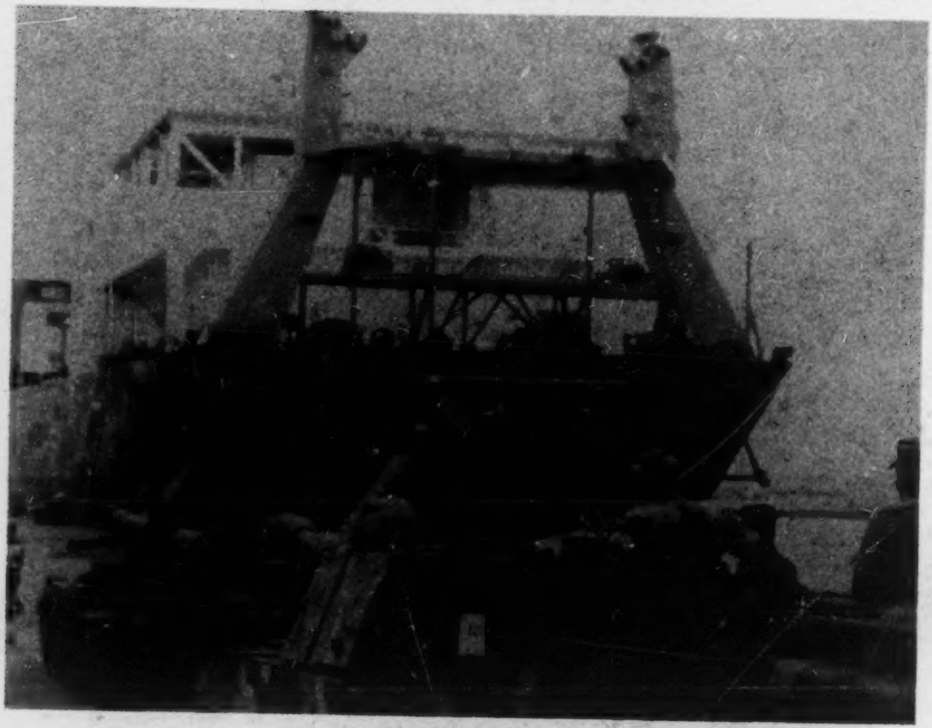
With the Marine Corps' crucial role in defending NATO's northern flank, the Marine Corps is in its final year of filling six NATO-funded, Norwegian-built storage sites with a MEB's set of equipment and supplies. The cavernous, climate-controlled, in-granite facilities are located in central Norway. Norway has organized a Host-Nation Support Battalion which, when activated, will assist in outloading the storage sites and perform many vital combat service support tasks in the redeployment of the air-lifted MEB to its designated objective area.

These four sets of combat equipment and supplies have been tailored to meet MEB-sized combat requirements in various portions of the world. Specifically, camouflage patterns exist for arctic, desert, and Temperate-Zone environments for different sets. The MPS ships and the caves in Norway have been precisely loaded to meet the deployment schemes of the designated MEB commanders. These brigades conduct exercises on an annual basis to hone their skills in offloading their ships or the Norwegian storage sites. These tasks include special functions which can best be accomplished by designated and trained brigade service support groups such as de-preserving the equipment, and assembling for movement to combat.

To maintain these sets of equipment at a tip-top readiness level, the Marine Corps conducts continual maintenance activities aboard each of the 13 MPS vessels, at a permanent maintenance site on Blount Island near Jacksonville (FL), and at the storage sites in Norway. Maintenance and modernization are performed by a commercial firm for the MPS sets of equipment and by the Norwegian Army under established agreements for the Norway set. This ensures prepositioned MEB equipment is maintained and modernized on a scheduled basis without noticeably reducing the total prepositioned equipment available for the MEBs.

USMC prepositioning offers a tremendous and strategically flexible national capability. Among the numerous roles and missions which can be assigned to prepositioning forces, two are of particular note. By moving an entire MPF or the NALM to a designated area prior to the outbreak of hostilities, a strong signal of U.S. resolve is given which may serve to dissuade potential adversaries from initiating a military conflict. Also, an MPF can reinforce an amphibious operation by rapidly surging forces into a secured beach head. With this immensely enhanced deployment capability, operational planners are now re-examining various operational plans to emphasize the rapid closure capabilities available in combining afloat amphibious forces with MPFs and the NALM.

Once these expeditionary forces are assembled, they have nearly a month's supply of rations, munitions, POL, and spare parts needed for waging combat operations. The self-sustainment aspects of the Marine Corps prepositioning forces is unmatched by any other U.S. airlifted force.



Another related initiative that will provide a significantly better expeditionary capability to Marine aviation units is the Aviation Logistic Support Ships (TAVB) concept. This program enhances the maintenance effort of our forward deployed aviation assets operating in contingency area. The USNS **Wright** and USNS **Curtiss** will sustain and support the intermediate maintenance requirements of the ACE of a MEB. The **Wright** was delivered in June 1986, and the **Curtiss** was delivered in August 1987.

Amphibious Lift

Although the Marine Corps does not fund any portion of sealift, its role as an expeditionary force gives it a vested interest in the status of amphibious assault shipping. The Commandant has frequently reiterated his support for the program objective of the amphibious assault lift for the assault echelons (AEs) of a MEF and MEB. This midterm objective will be realized by the late 1990s. The assault echelons comprise only a portion of the total MEF or MEB force structure. The remaining structure must be transported by air and by commercial-type shipping as part of the assault follow-on echelon (AFOE). The Navy and Marine Corps have stabilized the stated AE lift requirements specified for the MEF and MEB in order to provide a basis for programming a balanced amphibious ship force.

The current MEF(AE) lift capability is dependent upon the availability of all active and reserve amphibious ships. To attain and maintain a level of amphibious assault shipping sufficient to simultaneously lift a MEF(AE) and MEB(AE) requires new construction. An outgrowth of this coordinated effort to revitalize the amphibious force has been the development of a number of innovative proposals for improved ship-to-shore mobility that will support a wide range of operational concepts and ensure that a credible amphibious warfare capability exists through the end of this century and beyond.

The next few pages provide details on specific programs that will ensure a viable amphibious capability.

“WASP” Class (LHD)

Description The “WASP” class (LHD) is a multi-purpose amphibious assault ship. The ship's primary mission is to embark, deploy, and land elements of a Marine landing force in an assault by helicopters, landing craft, amphibious vehicles, and by combinations of these methods. The LHD class has a secondary/convertible mission for sea control.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	3	1	–	–	1	1

Why is it Important? The swift, forcible projection of our afloat Marine forces in the seizure or defense of: 1) advance naval bases for further operations, 2) land area dominating straits and narrow seas and 3) strategic islands/peninsulas, is of obvious importance to any naval campaign; hence, the requirement for amphibious forces. In order to be successful, however, our commanders must have not only the necessary amphibious lift but also the flexibility to land the landing force by air or surface means. The LHD class provides this flexibility. The LHD will significantly increase the total lift capability by providing a flight deck for both helicopters and V/STOL aircraft and offering a well-deck for both air-cushion and conventional landing craft. LHD is the linchpin to obtaining our mid-1990s lift objective.

Program Status LHD 1 (USS WASP) has been launched. The contract for LHD 2 was awarded in September 1986. The option to construct LHD 3 was exercised in November 1987.

Developer/Manufacturer Ingalls Shipbuilding, Pascagoula, MS

"WHIDBEY ISLAND" Class (LSD 41)

Description LSD 41 will provide well-deck space and have a maintenance capability for both conventional displacement landing craft and LCAC. An LSD 41 cargo variant (CV) is designed as an LSD 41 basic hull, optimized for cargo.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity						
LSD 41	8	–	–	–	–	–
LSD 41 (CV)	1	1	1	1	1	1

Why is it Important In 1967 there were 162 active amphibious ships. Today there are 63 total including both active and reserve ships. The remaining three "Thomaston" (LSD 28) class ships will retire by 1990. The LSD 41 construction program will replace the lost lift-capacity attributed to the LSD 28 class retirements. Procurement of the LSD 41 (CV) class of ships to provide required lift for a MEF(AE) and a MEB(AE), particularly in cargo and LCAC carrying capacity, is essential.

Program Status LSD 41 (USS WHIDBEY ISLAND), LSD 42 (USS GERMANTOWN) and LSD 43 (USS FORT McHENRY) have been commissioned. LSDs 44 through 46 have been launched and LSDs 47 and 48 are under construction. The contract award for LSD 49 was awarded in June 1987. It includes options for LSD 50 through 53.

Developer/Manufacturer Lockheed Shipbuilding, Seattle, WA
Avondale Industries, New Orleans, LA

Landing Craft Air Cushion (LCAC)

Description

The LCAC is a high-speed (40 + knots), over-the-beach, ship-to-shore amphibious landing vehicle capable of a 60-ton payload (75-ton overload). It is designed to lift all equipment organic to the MAGTF in an amphibious operation.

Procurement Profile

	Prior	FY-89	FY-90	FY-91	FY-92	FY-93
Quantity	33	15	9	12	12	12

Why is it Important?

This air cushion craft will replace current pre-WWII technology landing craft, scheduled for retirement during the late 1990s, with modern landing craft that offer the following advantages over current landing craft:

- Expose 70 percent of the world's beaches to amphibious operations vice the current 17 percent
- Travel in excess of 40 knots, vice 9-11 knots
- Craft characteristics provide OTH launch capability and decrease vulnerability of the force
- Increased survivability in mined waters
- Significantly increase build-up rate ashore, thus increasing probability of assault success
- Improved operation in poor weather and sea conditions

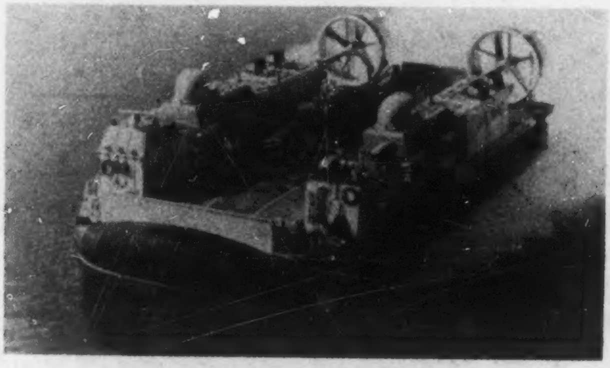
Six LCAC are the minimum needed to provide an operational capability for a MEU. A MEB requires 25 and a MEF notionally requires 65. Since the LCAC introduces the most significant improvement to amphibious warfare since the helicopter, LCAC procurement is strongly supported by the Marine Corps.

Program Status

Thirty-three LCACs have been delivered or are under contract. The first operational LCAC unit, Assault Craft Unit Five, is located at Camp Pendleton, CA. The second unit, Assault Craft Unit Four, is located at Little Creek, VA.

Developer/Manufacturer

Textron Marine System
Avondale Gulfport Marine



Naval Surface Fire Support (NSFS)

While evolving concepts for the conduct of the amphibious assault will exploit the capabilities of the MV-22A Osprey and LCAC to land forces in relatively unopposed areas from OTH wherever and whenever possible, circumstances may still require assaults against defended beaches and landing zones. Moreover, the landing force once ashore in the objective area must be prepared to face the type of violent counterattacks using highly mobile, mechanized forces that the projected threat espouses. This not only validates the continued requirement for NSFS to provide the responsive, close and continuous all-weather fire support required during the first 24 hours until artillery is established ashore but, given the requirement to support helicopterborne assaut forces landed 15-20 NM inland, also establishes the range requirement for modern NSFS systems at 60 NM (allowing for ship standoff distance). Reactivation of the four IOWA Class battleships has helped, but the bottom line is that the current inventory of NSFS platforms is deficient in range and lethality due to heavy dependence on 5-inch guns and the lack of the ability to kill hard, point targets without an excessive expenditure of ammunition.

In light of the foregoing, the Marine Corps supports the following enhancements to NSFS capabilities:

- Early introduction of 16-inch improvements that include a shipboard gunfire control system for greater accuracy and an extended range submunition projectile to provide greater range and a dramatic increase in lethality.
- Procurement and stockage of sufficient NSFS ammunition to support the amphibious operations of a MEF and MEB for 60 days.
- Development of follow-on payloads.
- Development of an 8-inch gun system to combine with the rocket system as a replacement for the 16-inch gun when the battleships are eventually retired.

Navy Support Element (NSE)

Description The NSE performs tasks to support amphibious and MPF operations in addition to those accomplished by the crews of amphibious ships. Since these units are not permanently assigned to the ships, they occupy berthing, vehicle, and cargo space designated for embarked personnel. The total lift requirement for an amphibious operation must therefore include NSE requirements as well as the MAGTF. The NSE, which will be split between the AE and the AFOE, is composed of the following:

- Commander Amphibious Task Force (CATF) Staff
- Naval Beach Group
  - Beach Group
  - Amphibious Construction Battalion
  - Assault Craft Unit
- SEALs
- Explosive Ordance Disposal (EOD) Unit
- Medical Augmentation Unit
- Mine Countermeasures Group
- Navy Mobile Construction Battalion (NMCB)
- Fleet Composite Readiness Group (FLTCORGRU)
- Search and Rescue (SAR) Unit
- Mobile Inshore Undersea Warfare (MIUW) Unit
- Navy Cargo Handling and Port Group (NAVCHAPGRU)

Why is it Important The NSE is vital to the smooth off-load of the amphibious force. Made up of widely diversified units, the principal challenge involved in the NSE is the manning and training of the NAVCHAPGRU, which is instrumental in operating the off-load systems of MPS/AFOE ships, and of the Naval Beach Group Units, who operate assault craft and lighterage for off-load of AE ships and control the flow of material on the beach to the high water mark.

Program Status The Marine Corps supports the ability to simultaneously deploy two MPF MEBs and two amphibious task forces. The NAVY is programming to meet this goal using a preponderance of reserve forces in the NAVCHAPGRU and amphibious construction battalion.

Medical Support

The Marine Corps receives all of its medical support from the Navy. The primary objective of the health service support system, during both peacetime and war, is to provide the necessary care to keep our Marines ready for their mission. This support extends to the dependents of our Marines as well.

The medical support provided to the MAGTFs spans across a continuum of care that begins with the individual Navy medical Corpsman that serves at the unit level. This continuum extends from emergency treatment facilities organic to the Medical Battalion of the CSSE, to specially designed Navy Hospital ships (discussed further below), and finally to first class hospital in the theater of operations or in CONUS.

Because of the expeditionary nature of the Marine Corps, our medical support organizations must be equally mobile and responsive. This mandates that peacetime medical support units be maintained at a satisfactory level of readiness in terms of trained personnel and logistic preperation. This capability to support the MAGTF in global contingencies saves lives once the MAGTF has been engaged.

Each MEF must have the capability of caring for a total of 20,000 casualties in a 60-day period. To meet this requirement, advanced medical equipment and life-saving facilities have been added to our inventories. In addition, two hospital ships, the MERCY and the COMFORT, have been delivered. Each vessel is maintained in the Reserve Fleet in a 5-day recall status. One vessel is positioned on each coast. Both ships contain 1,000 beds and 12 operating rooms. By 1991, the Navy will attain the programmed goal of 11,250 additional hospital beds through the Fleet Hospital program. The delivery of the two hospital ships and the programmed Fleet Hospital assets represent a significant step forward towards ensuring prompt and professional medical care for our young Marines when sent "in harm's way."

Navy Fleet Hospitals

Description Fleet hospitals are modular, rapidly erectable, relocatable medical facilities for treatment of both Navy and Marine Corps wounded. This Navy program provides both CBTZ and COMMZ facilities of varying sizes for a balance of mobility, flexibility and levels of care. Fleet hospitals will receive patients from amphibious task force ships as well as directly from combatant units in the AOA. Fleet hospitals can be staged in CONUS or prepositioned either afloat or overseas in advance of hostilities. The total program calls for 21 hospitals and a total of 11,250 beds.

Procurement Profile

Prior	FY-89	FY-90	FY-91	FY-92
7,750 beds	500 beds	2,000 beds	1,000 beds	

Why is it Important? Rapidly deployable fleet hospitals will provide timely treatment in-theater to save lives, reduce disease, and maximize returns to duty. Like hospital ships and medical battalions, they are an integral part of the naval theater medical support structure and continuum of care. All elements of the continuum are needed to sustain combat operations.

Program Status This program is on schedule. The current profile will attain a long standing medical support objective.

Appendix A

Glossary

AAAV	ADVANCED AMPHIBIOUS ASSAULT VEHICLE
AAV	ASSAULT AMPHIBIOUS VEHICLE
AAWS-M	ADVANCED ANTITANK WEAPON SYSTEM-MEDIUM
ACE	AVIATION COMBAT ELEMENT
ACM	AIR COMBAT MANEUVERING
ACMC	ASSISTANT COMMANDANT OF THE MARINE CORPS
ACP	AIRBORNE COLLECTION PLATFORM
ADM	ACQUISITION DECISION MEETING
ADP	AUTOMATED DATA PROCESSING
AE	ASSAULT ECHELON
AFATDS	ARMY FIELD ARTILLERY TACTICAL DATA SYSTEM
AFOE	ASSAULT FOLLOW-ON ECHELON
AFQT	ARMED FORCES QUALIFICATION TEST
AGES	AIR GROUND ENGAGEMENT SYSTEM
AIS	AUTOMATED INFORMATION SYSTEM
AMASS	ADVANCED MARINE AIRBORNE SIGNALS INTELLIGENCE SYSTEM
ANGLICO	AIR/NAVAL GUNFIRE LIAISON COMPANY
ANVIS	AVIATOR'S NIGHT VISION IMAGING SYSTEM
AOA	AMPHIBIOUS OBJECTIVE AREA
APFSDS-T	ARMOR PIERCING FIRE STABILIZED DISCARDING SABOT-TRACER
APN	AIRCRAFT PROCUREMENT, NAVY
APPN	APPROPRIATION
APTS	ANALOG PRINTED TEST SET
ARBS	ANGLE RATE BOMBING SYSTEM
ASIP	ALL SOURCE IMAGERY PROCESSOR
ASW	ANTISUBMARINE WARFARE
ATACC	ADVANCED TACTICAL AIR COMMAND CENTRAL
ATARS	ADVANCED TACTICAL AERIAL RECONNAISSANCE SYSTEM
ATD	ADDITIONAL TEMPORARY DUTY
ATF	AMPHIBIOUS TASK FORCE
AVLB	ARMORED VEHICLE LAUNCHED BRIDGE
AVN	AVIATION
BCS	BATTERY COMPUTER SYSTEM
BEQ	BACHELOR ENLISTED QUARTERS
C2I	COMMAND, CONTROL AND INTELLIGENCE
C4	COMMAND, CONTROL, COMMUNICATIONS AND COMPUTER SYSTEMS
CAEMS	COMPUTER AIDED EMBARKATION MANAGEMENT SYSTEM
CAG	CIVIL AFFAIRS GROUP
CAL	CALIBER
CAM	CHEMICAL AGENT MONITOR
CAMPS	COMPUTER-ASSISTED MISSION PLANNING SYSTEM
CAST	COMBINED ARMS STAFF TRAINER
CATF	COMMANDER AMPHIBIOUS TASK FORCE
CATFAE	CATAPULT LAUNCHED FUEL-AIR EXPLOSIVE LAND MINE

CAX	COMBINED ARMS EXERCISE
CBTZ	COMBAT ZONE
CCO	COMMUNICATIONS COLLECTION OUTSTATION
CCS	COUNTERINTELLIGENCE COMMUNICATIONS SYSTEM
CE	COMMAND ELEMENT
CECM	COMMUNICATION ELECTRONIC COUNTERMEASURES (CECM)
CEP	CIRCULAR ERROR PROBABLE
CG	COMMANDING GENERAL
CHG PROP WB	CHARGE PROPELLENT WHITE BAG
CI	COUNTERINTELLIGENCE
CIEP	COUNTERINTELLIGENCE EQUIPMENT PROGRAM
CINC	COMMANDER-IN-CHIEF
CINCLANTFLT	COMMANDER-IN-CHIEF ATLANTIC FLEET
CINCPACFLT	COMMANDER-IN-CHIEF PACIFIC FLEET
CI&SE	COUNTERINTELLIGENCE AND SECURITY EQUIPMENT
CITS	COUNTERINTELLIGENCE TEAMS
CMC	COMMANDANT OF THE MARINE CORPS
CNET	CHIEF OF NAVAL EDUCATION AND TRAINING
COMMCON	COMMUNICATIONS CONTROL
COMINT	COMMUNICATIONS INTELLIGENCE
COMMZ	COMMUNICATION ZONE
COMSEC	COMMUNICATIONS SECURITY
CONUS	CONTINENTAL UNITD STATES
CP	COMMAND POST
CSP	CONTINGENCY SUPPORT PACKAGE
CSSE	COMBAT SERVICE SUPPORT ELEMENT
CUDIX	COMMON USER DIGITAL EXCHANGE
CV	CARGO VARIANT
CVBG	CARRIER BATTLE GROUP
CY	CALENDAR YEAR
DAMA	DEMAND ASSIGNED MULTIPLE ACCESS
DASC	DIRECT AIR SUPPORT CENTER
DCS	DEFENSE COMMUNICATIONS TERMINAL
DC/S	DEPUTY CHIEF OF STAFF
DCT	DIGITAL COMMUNICATIONS TERMINAL
DECM	DEFENSIVE ELECTRONIC COUNTER MEASURES
DEP	DELAYED ENTRY PROGRAM
DF	DIRECTION FINDING
DG	DEFENSE GUIDANCE
DI	DRILL INSTRUCTOR
DMA	DEPOT MAINTENANCE ACTIVITY
DNCPPG	DEPARTMENT OF THE NAVY CONSOLIDATED PLANNING AND PROGRAMMING GUIDANCE
DP	DUAL PURPOSE
DOD	DEPARTMENT OF DEFENSE
DON	DEPARTMENT OF THE NAVY
DRB	DEFENSE RESOURCES BOARD
DT	DEVELOPMENTAL TEST
DTDMA	DISTRIBUTED TIME DIVISION MULTIPLE ACCESS
DWFK	DEEP WATER FORDING KIT
EA	EVOLUTIONARY ACQUISITION
ECCM	ELECTRONIC COUNTER-COUNTERMEASURES
ECM	ELECTRONIC COUNTERMEASURES
ECO	ELINT COLLECTION OUTSTATION
EDM	ENGINEERING DEVELOPMENT MODEL

ELINT	ELECTRONIC INTELLIGENCE
EMC	ELECTRONIC MAINTENANCE COMPLEX
EMI	ELECTRO-MAGNETIC INTERFERENCE
EO	ELECTRO-OPTICAL
EOB	ELECTRONIC ORDER OF BATTLE
EOD	EXPLOSIVE ORDNANCE DISPOSAL
ESS	ELECTRONIC INTELLIGENCE (ELINT) SUPPORT SYSTEM
ECE	END USER COMPUTING EQUIPMENT
EW	ELECTRONIC WARFARE
EWSM	ELECTRONIC WARFARE SUPPORT MEASURES
FAT	FIRST ARTICLE TESTING
FAAD	FORWARD AREA AIR DEFENSE
FDC	FIRE DIRECTION CENTER
FHN&MC	FAMILY HOUSING, NAVY AND MARINE CORPS
FIE	FLY-IN ECHELON
FLIR	FORWARD LOOKING INFRARED
FLTSAT	FLEET SATELLITE
FM	FREQUENCY MODULATION
FMF	FLEET MARINE FORCE
FMFLANT	FLEET MARINE FORCE, ATLANTIC
FMFPAC	FLEET MARINE FORCE, PACIFIC
FOCS	FIBER OPTICS CABLE SYSTEM
FSD	FULL SCALE DEVELOPMENT
FSED	FULL SCALE ENGINEERING DEVELOPMENT
FSSG	FORCE SERVICE SUPPORT GROUP
FTS	FULL-TIME SUPPORT
FY	FISCAL YEAR
FYDP	FIVE YEAR DEFENSE PROGRAM
GCE	GROUND COMBAT ELEMENT
GCS	GROUND CONTROL STATION
GP	GENERAL PURPOSE
GPH	GALLONS PER HOUR
GPS	GLOBAL POSITIONING SYSTEM
GTRS	GROUND THREAT RADAR SIMULATOR
HARM	HOMING ANTIRADIATION MISSILE
HAW	HEAVY ANTIARMOR WEAPON
HEAA	HIGH EXPLOSIVE ANTIARMOR
HEAT	HIGH EXPLOSIOVE ANTITANK
HEAT-MP-T	HEAT-MULTI-PURPOSE-TRACER
HEDP	HIGH EXPLOSIVE, DUAL PURPOSE
HEMTT	HEAVY EXPANDED MOBILITY TACTICAL TRUCK
HESU	HAND EMPLACED STORAGE UNIT
HET	HEAVY EQUIPMENT TRANSPORTER
HFCC	HIGH FREQUENCY COMMUNICATIONS CENTRAL
HMMWV	HIGH MOBILITY MULTIPURPOSE WHEELED VEHICLE
HOW	HOWITZER
HP	HORSEPOWER
HQ	HAVE QUICK
HQMC	HEADQUARTERS MARINE CORPS
HUMINT	HUMAN INTELLIGENCE
IAC	INTELLIGENCE ANALYSIS CENTER
ICAD	INDIVIDUAL CHEMICAL AGENT DETECTOR
ICM	IMPROVED CONVENTIONAL MUNITIONS
IDASC	IMPROVED DIRECT AIR SUPPORT CENTRAL
IDB	INTEGRATED DATA BASE

IFF	IDENTIFICATION FRIEND OR FOE
I&L	INSTALLATIONS AND LOGISTICS
ILLUM	ILLUMINATION
IMA	INTERMEDIATE MAINTENANCE ACTIVITY
IMC	INTEGRATED MANEUVER CONTROLLER
IMINT	IMAGERY INTELLIGENCE
IMS	INSTRUCTIONAL MANAGEMENT SYSTEM
INTEL	INTELLIGENCE
IOC	INITIAL OPERATING CAPABILITY
IR	INFRARED
IRR	INDIVIDUAL READY RESERVE
ISD	INSTRUCTIONAL SYSTEMS DEVELOPMENT
ISIS	INTEGRATED SIGNALS INTELLIGENCE SYSTEM
ISO	INTERNATIONAL STANDARDIZATION ORGANIZATION
IU	INTERROGATION UNIT
JCS	JOINT CHIEFS OF STAFF
JINTACCS	JOINT INTEROPERABILITY TACTICAL COMMAND AND CONTROL SYSTEM
JSIP	JOINT SOURCE IMAGERY PROCESSOR
JTIDS	JOINT UNIFORM MILITARY PAY SYSTEM/MANPOWER MANAGEMENT SYSTEM
KE	KINETIC ENERGY
KHZ	KILOHERTZ
LAAD	LOW ALTITUDE AIR DEFENSE
LAAM	LIGHT ANTIAIRCRAFT MISSILE
LAW	LIGHT WEIGHT ANTIARMOR WEAPON
LAV	LIGHT ARMORED VEHICLE
LEWDD	LIGHTWEIGHT EARLY WARNING DETECTION DEVICE
LCAC	LANDING CRAFT AIR CUSHION
LEASAT	LEASED SATELLITE
LHD	AMPHIBIOUS ASSAULT SHIP (MULTI-PURPOSE)
LIC	LOW INTENSITY CONFLICT
LLI	LONG LEAD ITEM
LOB	LINE-OF-BEARING
LVS	LOGISTICS VEHCLE SYSTEM
LWCMS	LIGHT WEIGHT COMPANY MORTAR SYSTEM
MAG	MARINE AIRCRAFT GROUP
MAGIS	MARINE AIR-GROUND INTELLIGENCE SYSTEM
MAGTEC	MARINE AIR-GROUND TRAINING AND EDUCATION CENTER
MAGTF	MARINE AIR-GROUND TASK FORCE
MARDIV	MARINE DIVISION
MASC	MAGTF AUTOMATED SEVICES CENTER
MAW	MARINE AIR WING
MAWTS-1	MARINE AVIATION WEAPONS AND TACTICS SQUADRON-ONE
MBST	MARINE BATTLE SKILLS TRAINING
MBT	MAIN BATTLE TANK
MACCS	MARINE COMMAND AND CONTROL SYSTEM
MCAGCC	MARINE CORPS AIR GROUND COMBAT CENTER
MCAS	MARINE CORPS AIR STATION
MCB	MARINE CORPS BASE
MCCDC	MARINE CORPS COMBAT DEVELOPMENT COMMAND
MCCDPA	MARINE CORPS CENTRAL DESIGN AND PROGRAMMING ACTIVITY
MCCP	MARINE CORPS CAMPAIGN PLAN
MCCRES	MARINE CORPS COMBAT READINESS EVALUATION SYSTEM
MCESS	MARINE CORPS EXPEDITIONARY SHELTER SYSTEM

MCLB	MARINE CORPS LOGISTICS BASE
MCMWTC	MARINE CORPS MOUNTAIN WARFARE TRAINING CENTER
MCON	MILITARY CONSTRUCTION
MCNR	MILITARY CONSTRUCTION, NAVY RESERVE
MCRDAC	MARINE CORPS RESEARCH, DEVELOPMENT, AND ACQUISITION COMMAND
MCSF	MARINE CORPS STOCK FUND
MEB	MARINE EXPEDITIONARY BRIGADE
MEC	MINIMUM ESSENTIAL CAPABILITY
MEF	MARINE EXPEDITIONARY FORCE
MEU	MARINE EXPEDITIONARY UNIT
MEU(SOC)	MARINE EXPEDITIONARY UNIT (SPECIAL OPERATIONS CAPABLE)
MEWSS	MOBILE ELECTRONIC WARFARE SUPPORT SYSTEM
MG	MACHINE GUN
MGB	MEDIUM GIRDER BRIDGE
MHZ	MEGAHERTZ
MILES	MULTIPLE INTEGRATED LASER ENGAGEMENT SYSTEM
MIUW	MOBILE INSHORE UNDERSEA WARFARE
MLRP	MARINE CORPS LONG RANGE PLAN
MLRS	MULTIPLE LAUNCHER ROCKET SYSTEM
MM	MILLIMETER
MMP	MAGTF MASTER PLAN
MMROP	MARINE CORPS MID-RANGE OBJECTIVES PLAN
MORDT	MOBILIZATION OPERATIONAL READINESS DEP;OYMENT TEST
MOS	MILITARY OCCUPATIONAL SPECIALTY
MOUT	MILITARY OPERATIONS IN URBAN TERRAIN
MPF	MARITIME PREPOSITIONING FORCE
MPMC	MILITARY PERSONNEL, MARINE CORPS
MPN	MILITARY PERSONNEL, NAVY
MPR	MANPOWER
MPS	MARITIME PREPOSITIONING SHIPS
MRV	MISSION ROLE VEHICLE
MSC	MILITARY SEALIFT COMMAND
MTO	MID-TERM OBJECTIVE
MTS	MOVING TARGET SIMULATOR
MU	MEMORY UNIT
MULE	MODULAR UNIVERSAL LASER EQUIPMENT
NATO	NORTH ATLANTIC TREATY ORANIZATION
NAVCOMPT	COMPTROLLER OF THE NAVY
NAVCHAPGRU	NAVY CARGO HANDLING AND PORT GROUP
NAVMACS	NAVAL EDUCATION AND TRAINING PROGRAM MANAGEMENT SYSTEMS ACTIVITY
NBC	NUCLEAR, BIOLOGICAL AND CHEMICAL
NCA	NATIONAL COMMAND AUTHORITY
NCO	NONCOMMISSIONED OFFICER
NDI	NON-DEVELOPMENTAL ITEM
NDRF	NATIONAL DEFENSE RESERVE FLEET
NETPMSA	NAVAL EDUCATION AND TRAINING PROGRAM MANAGEMENT SYSTEMS ACTIVITY
NIPS	NAVAL INTELLIGENCE PROCESSING SYSTEM
NM	NAUTICAL MILE
NMCB	NAVY MOBILE CONSTRUCTION BATTALION
NOSC	NAVAL OCEAN SYSTEMS CENTER
NSA	NATIONAL SECURITY AGENCY
NSE	NAVY SUPPORT ELEMENT

NSF	NAVY STOCK FUND
NSFS	NAVAL SURFACE FIRE SUPPORT
NTS	NAVAL TELECOMMUNICATIONS SYSTEM
0&MMC	OPERATION AND MAINTENANCE, MARINE CORPS
0&MMCR	OPERATION AND MAINTENANCE, MARINE CORPS RESERVE
0&MN	OPERATION AND MAINTENANCE, NAVY
0&MNR	OPERATION AND MAINTENANCE, NAVY RESERVE
OPEVAL	OPERATIONAL EVALUATION
OPN	OTHER PROCUREMENT, NAVY
OSCC	OPERATIONAL SYSTEMS CONTROL CENTER
OSD	OFFICE OF THE SECRETARY OF DEFENSE
OT	OPERATIONAL TESTING
OT&E	OPERATIONAL TEST AND EVALUATION
OTH	OVER THE HORIZON
PAA	PROGRAMMED AIRCRAFT AUTHORIZATION
PALCON	PALLET CONTAINER
PCG	PROGRAM COORDINATION GROUP
PCPS	PORTABLE COLLECTIVE PROTECTION SYSTEM
PCS	PORTABLE CONTROL STATION
PEG	PROGRAM EVALUATION GROUP
PEI	PRINCIPAL END ITEM
PGTS	PRECISION GUNNERY TRAINING SYSTEM
PIP	PRODUCT IMPROVEMENT PROGRAM
PIU	PROCESSOR INTERFACE UNIT
PLRS	POSITION LOCATION REPORTING SYSTEM
PMC	PROCUREMENT, MARINE CORPS
PME	PROFESSIONAL MILITARY EDUCATION
POL	PETROLEUM, OIL AND LUBRICANTS
POM	PROGRAM OBJECTIVE MEMORANDUM
PPBS	PLANNING, PROGRAMMING AND BUDGETING SYSTEM
PP&0	PLANS, POLICIES AND OPERATIONS
PSI	POUNDS PER SQUARE INCH
PTC	PORTABLE TECHNICAL CONTROL
PWG	POM WORKING GROUP
QMA	QUALIFIED MILITARY APPLICANTS
QOL	QUALITY OF LIFE
QUADCON	QUADRUPLE CONTAINER
R&D	RESEARCH AND DEVELOPMENT
RB	RED BAG
R/DF	REPRODUCTION/DISTRIBUTION FACILITY
RDT&EN	RESEARCH, DEVELOPMENT, TEST AND EVALUATION NAVY
RETS	REMOTE ENGAGEMENT TARGET SYSTEM
RF	RADIO FREQUENCY
RFP	REQUEST FOR PROPOSAL
RHA	ROLLED HOMOGENEOUS ARMOR
RKT	ROCKET
RLT	REGIMENTAL LANDING TEAM
RO/RO	ROLL-ON/ROLL-OFF
RPMC	RESERVE PERSONNEL, MARINE CORPS
RPN	RESERVE PERSONNEL, NAVY
RPPS	RETIRED PAY PERSONNEL SYSTEMS
RPV	REMOTELY PILOTED VEHICLE
RRC	RIGID RAIDER CRAFT
RRF	READY RESERVE FLEET
SAAS	STAND ALONE ANALYSIS SYSTEM

SAL-GP	SEMIACTIVE, LASER-GUIDED PROJECTILE
SAR	SEARCH AND RESCUE
SARTS	SMALL ARMS REMOTE TARGETS
SATCOM	SATELLITE COMMUNICATIONS
SCN	SHIPBUILDING AND CONVERSION, NAVY
SCRE	STRATIFIED CHARGE ROTARY ENGINE
SE	SUPPORTING ESTABLISHMENT
SEAL	SEA-AIR-LAND
SECNAV	SECRETARY OF THE NAVY
SHF	SUPER HIGH FREQUENCY
SIGINT	SIGNALS INTELLIGENCE
SINCGARS	SINGLE CHANNEL GROUND AND AIRBORNE RADIO SYSTEM
SIXCONS	FUEL/WATER STORAGE AND PUMP MODULES
SLAR	SIDE LOOKING AIRBORNE RADAR
SLEP	SERVICE LIFE EXTENSION PROGRAM
SLOC	SEA LINES OF COMMUNICATION
SLT	SIMULATED LASER TARGETS
SMAW	SHOULDER-LAUNCHED MULTIPURPOSE ASSAULT WEAPON
SMCR	SELECTED MARINE CORPS RESERVE
SMK	SMOKE
SOC	SPECIAL OPERATIONS CAPABLE
SOI	SCHOOL OF INFANTRY
SP	SELF PROPELLED
SPEED	SYSTEMS PLANNING, ENGINEERING, AND EVALAUTION DEVICE
SRB	SELECTIVE REENLISTMENT BONUS
SRI	SURVEILLANCE, RECONNAISSANCE, AND INTELLIGENCE
STA	SURVEILLANCE AND TARGET ACQUISITION
TACAIR	TACTICAL AIR
TACC	TACTICAL AIR COMMAND CENTER
TACDM	TACTICAL DECISION MAKING
TAOM	TACTICAL AIR OPERATIONS MODULE
TADIL-J	TACTICAL DIGITAL INFORMATION LINK-J
TAVB	AVIATION LOGISTICS SUPPORT SHIP
TBD	TO BE DETERMINED
TCAC	TECHNICAL CONTROL AND ANALYSIS CENTER
TCC	TACTICAL COMMUNICATIONS CENTER
TCO	TACTICAL COMBAT OPERATIONS
TDAR	TACTICAL DEFENSE ALERT RADAR
TDMA	TIME DIVISION MULTIPLE ACCESS
T/E	TABLE OF EQUIPMENT
TENCAP	TACTICAL EXPLOITATION OF NATIONAL CAPABILITIES
TERPES	TACTICAL ELECTRONIC RECONNAISSANCE PROCESSING AND EVALUATION SYSTEM
TFS	TACTICAL FUEL SYSTEM
TLB	TRAILER LAUNCHED BRIDGE
TOA	TOTAL OBLIGATIONAL AUTHORITY
TOW	TUBE-LAUNCHED, WIRE-GUIDED, OPTICALLY-TRACKED MISSILE
TPCS	TEAM PORTABLE COMMUNICATIONS INTELLIGENCE SYSTEM
TPCSDS-T	TARGET PRACTICE CONE STABILIZED DISCARDING SABOT-TRACER
TPS	TEST PROGRAM SET
TP-T	TARGET PRACTICE-TRACER
TPSDS	TEST PROGRAM SET DEVELOPMENT SYSTEM
TRE	TACTICAL RECEIVE EQUIPMENT
TRI-TAC	JOINT TACTICAL COMMUNICATIONS OFFICE
TRNG	TRAINING

TRSS	TACTICAL REMOTE SENSOR SYSTEM
TSCM	TECHNICAL SURVEILLANCE COUNTERMEASURES
TWSEAS	TACTICAL WARFARE SIMULATION, EVALUATION AND ANALYSIS SYSTEM
TWSEAS-IMC	TWSEAS-INTEGRATED MANEUVER CONTROLLER
UDP	UNIT DEPLOYMENT PROGRAM
UHF	ULTRA HIGH FREQUENCY
ULCS	UNIT LEVEL CIRCUIT SWITCH
ULS	UNIT LEVEL SWITCH
USA	UNITED STATES ARMY
VEAP	VETERAN'S EDUCATION ASSISTANCE PROGRAM
VHF	VERY HIGH FREQUENCY
VMADET	FIXED WING MARINE ATTACK DETACHMENT
VMFT-401	MARINE FIGHTER TRAINING SQUADRON-401
V/STOL	VERTICAL SHORT TAKE OFF AND LANDING
WB	WHITE BAG
WP	WHITE PHOSPHOROUS
WPN	WEAPONS PROCUREMENT, NAVY
WTI	WEAPONS AND TACTICS INSTRUCTOR

Appendix B

Distribution

CG FMFPAC	20	CG 4TH MEB	10
CG FMFLANT	20	CG 5TH MEB	10
CG FMFEUR Designate	10	CG 6TH MEB	10
CG 1ST MARDIV	30	CG 7TH MEB	10
CG 2D MARDIV	30	CG 9TH MEB	10
CG 3D MARDIV	30	CG MCAGCC	10
CG 4TH MARDIV	30	CG I MEF	10
CG 1ST MAW	30	CG II MEF	10
CG 2D MAW	30	CG III MEF	10
CG 3D MAW	30	CG MCB Camp Pendleton	20
CG 4TH MAW	30	CG MCB Camp Lejeune	20
CG 1ST FSSG	30	CG MCCDC	220
CG 2D FSSG	30	CG MCRDAC	100
CG 3D FSSG	30	MCOTEA	10
CG 4TH FSSG	30	MCTSSA	10
CG MCLB, Albany	10	MCFC	10
CG MCLB, Barstow	10	NROTC UNITS	59
CG 1ST MEB	10	MC REPS/LNO (1 each)	120
CG 2D MEB	10	Unified Commands (10 each)	80

HQMC:	AVN	30	PP&O	30	FD	10	C^4I^2	20
	MPR + RA	40	CL	2	HD	2	MED	2
	I&L	30	PA	50	JAD	2	OLA	300
	CH	2						

WITNESSES

	Page
Ball, Hon. W.L., III	389
Freitag, Maj. Gen. Merle	1
Gray, Gen. A.M	389
Marsh, Hon. J.O., Jr	1
McGovern, Hon. J.F	211
Pihl, Lt. Gen. D.S	1
Trost, Adm. C.A. H	389
Vuono, Gen. C.E	1
Welch, Gen. L.D	211

INDEX

FISCAL YEAR 1990 AIR FORCE POSTURE

Page
Active Force Structure 306
Advanced Cruise Missile 265, 314
AGM-130 Missile 318
Aircraft Programs:
  A-7 Plus Program 296
  B-1B Program 256, 267, 308
  B-2 Program 318
    Alert Rate of 236
    Cost of the 236
    Flyaway Cost 240
    Mission of the 234
    Versus B-1 242
  B-52s, Retirement of Conventional 322
  C-17 Aircraft 254, 258, 289
  F-16 Procurement Rates 280, 321
  FSX Technology 318
  National Aerospace Plane (NASP) 296
  President's Airplane 257
Anti-Satellite (ASAT) Weapon 281
Arms Control 275
Auditing Industry 261
Audits and Investigations, Level of 254
Basing Mode, New 234
Bush Budget Amendment, Status of 225, 284
Cheyenne Mountain 243
Close Air Support (CAS) 292
Commercial Airlines, Problems of 239
Cost of Living Adjustment (COLA), One Percent Reduction in 282
DOD Inspector General Report 323
Earth Penetrating Warhead 273, 316
Electronic Combat 285
Electronic Countermeasures 258
Financial Planning, Stable 283
Fiscal Year 1990 Air Force Joint Posture Statement, The 325
ICBM Modernization 229, 287
Industry, Better Cooperation with 260
Introduction 211, 253
Local Weather Dissemination System (LWDS) 280
Manufacturing Technology Industrial Modernization Improvement Program ... 303
Military Construction, Cost Estimate of 237
Nuclear Modernization 226

Page

Over-the-Horizon Backscatter Radar 280
Pilot Continuation Pay 281
Pilot Retention 237
Readiness, Effect of Reducing 225
Reconnaissance, Overhead 270
Reserve/Guard Force Structure 307
Satellite Control Network Upgrade 300
Statement of the Secretary of The Air Force and General Larry D. Welch, Chief of Staff, USAF 325
Strategic Budget Resource Levels 228
Strategic Warning 263
Summary Statement of General Welch 214
Summary Statement of Secretary McGovern 211
  Fiscal Year 1990 Budget Request 212
  National Security 212
Tanker Trainer Transport Study 317
Traffic Collision Avoidance System 262
Warheads, Cost of 237
Warheads, Funding for 231
Warning, Level of 232
Weather and Hurricane Reconnaissance 250, 284

FISCAL YEAR 1990 ARMY POSTURE

9th Infantry Division (ID) Reconfiguration 31
Active Force Structure 94
Advanced Anti-Tank Weapon System-Medium (AAWS–M) 36
Ammunition Procurement 59, 96
  120mm Mortar 110
  Artillery 61
  Blank Training 89
  Tank 60
Anti-Armor Weapons System 48, 104
Armed Forces Recreation Center (AFRC) 114
Arms Control 67
Army College Fund 56
Army Development and Employment Agency (ADEA) 34
Budget, Fiscal Year 1990 Defense:
  Army Share of 26
  Bush Reductions 89
  Guidance 27
  Investment Accounts 25
  Priorities 25
  Recruiting 58
  Reduction 27
  Trends 25
Chemical Weapons, Destruction of 54, 66, 98
  Demilitarization 68
Command and Control, Army Reserve 52
Congressional Budget Office Recommendations 30
Deployed Forces, Sustainment of 51
Dragon Program 37
Drug Interdiction 45
Fiber Optic Guided Missile (FOG–M) 80

Page
Forward Area Air Defense System (FAADS) 80
Head Wound Research 49, 112
Heavy Force Modernization 73, 105
Helicopter Programs:
  Black Hawk 41
  LHX 63, 81
    Problems 83
    Unit Cost 85
  Role of 63
  Speed of 65
  Utility 40
Introduction 1
LAMP-H Program 47, 49
Lance Missile 108
M-88 Recovery Vehicle 82, 100
Mobilization, Reserve 71
OPTEMPO 101
Overseas Stationing 44, 51
  Dependents' Costs 45
Program Stretchouts 28
Recruiting and Retention 55
Recruiting Scandal, Marine Corps 56
Reduction in Force 24, 31
Remarks of Mr. Whitten 1, 24
Reserve Component Automation System (RCAS) 69, 76, 102
Rotary Valve/Rotary Combustion Technology 86
Sea and Airlift 43
Sequestration, Impact of 29
Soviet Equipment 42
Soviet Industrial Base 43
Soviet Tanks 41, 61
Statement of General Carl E. Vuono, Chief of Staff, USA 19
Statement of the Secretary of the Army 9
Statement, the United States Posture, Fiscal Year 1989 116
Summary Statement of General Vuono 16
  Arms Control 18
  Budget Priorities 16
  Future of the Army 17
  Modernization 18
  Quality Force 17
  Quality of Life Programs 17
  Strategic Role of the Army 16
  Summary 18
Summary Statement of Secretary Marsh 3
  Arms of Today 4
  Budget Cuts 6
  Budget Reductions, Impact of 7
  Force Structure 5, 7
  Modernization 5
  Quality of Army Personnel 4
  Readiness 7
  Training 6
Tactical Wheeled Vehicle Modernization Plan 111

Page

Tanks 61
  Block II Tank Program 62
  Israeli Tanks 78
  M-1 Tank Production 72
  M1A1 Tank Production 87
Ten Ton Trucks 65, 111
Troop Rotations 90
Troop Strengths 91
  Active vs. Reserve Units 91

FISCAL YEAR 1990 NAVY POSTURE

Advanced Anti-Tank Weapon System-Medium (AAWS-M) and Dragon Programs 415
Advanced Submarine Technologies 463
Aircraft Procurement 491, 507
  A-6 Attack Aircraft 506
  Advanced Tactical Fighter 411, 505
  Affordability of the Navy's Aircraft Program 523
  AV-8B Procurement 413, 445
  CH-53E Helicopter 442
  V-22 Osprey Program 406, 492
Amphibious Lift 447, 494
Anti-Satellite (ASAT) Program 440, 464, 473, 506
Automated Data Processing Procurement 433, 476
  DOD Inspector General ADP Report 512
  Standard Automated Financial System (STAFS) 510
  Surveys and Investigative (S&I) Report on Navy ADP 518
Base Closures 439
Bigeye Bomb 445
Budget, Fiscal Year 1990 Defense:
  Bush Budget Reductions 501
  Overall Constraints 395
  Overall Outlook 442
Carrier Battle Group Force Structure 404, 444
Collision Avoidance System 500
Contracting and Competition, Shipbuilding 413
Contracts, Fixed Price 431
Cost Differential 432
Enhanced Modular Signal Processor (EMSP) 482
FFG-7's Vulnerability to Anti-Ship Missiles 521
Frigate Retirement Status 429
IBM Preference Issue, The 520
Industrial Base, Shipbuilding 490
Introduction 389, 451
Korean Reinforcement 400
Lessons Learned from 1988 Incidents 452
  Marine Corps Incidents 455
  Procurement Scandal, Navy 477
  Rother Case 439
Light Armored Vehicle-Assault Gun (LAV-AG) 449
M1A1 Tank 450
Marine Corps Reserves, Funding for 412
Merchant Marine and Shipyard Base Decline 446
MHC-Mine Hunter Coastal Program 433

Page
- MK-48 ADCAP Torpedo 475
- Manday Rates 432
- National Academy of Sciences Study 493
- New Threat Upgrade 421, 429
- Operation and Maintenance Issues:
  - Active/Reserve Force Mix 500
  - Contracting Out 472
  - End Strength 409
  - Government Employees 431
  - Medical Care 451, 501
  - Personnel Reductions, Impact of Possible 410
  - Pilot Retention 434
  - Readiness 396
  - Ship Depot Maintenance Study 497
  - Small/Disadvantaged Business, Navy Contracting with 469
  - Steaming Costs 472
- Overhauls, SRAs, PMAs, Public/Private 426
- Philippines, Soviet Proposal Regarding the 470
- Procurement and Contracting, Navy 476
- Procurement Programs, Affordability of Major 479
- Public-Private Ship Repair Competition 420, 423
- Remarks of Mr. Whitten 401
- Sea Lance Program 405
- Sealift 438, 446, 466, 470
- Sequestration 411
- Shipbuilding Programs 509
- Soviet Naval Operations 498
- Soviet Submarine Quieting 408, 417
- SSN-21 Submarine 403, 459, 521
- Statement of Admiral C.A.H. Trost, Chief of Naval Operations, USN 557
- Statement of General A.M. Gray, Commandant of the Marine Corps 618
- Statement of the Acting Secretary of the Navy 525
- Summary Statement of Admiral Trost 391
- Summary Statement of General Gray 393
- Summary Statement of Secretary Ball 389
  - Conclusion 391
  - Readiness Improvements 390
  - Reform Initiatives 390
- Surface Combatant Force Requirements Study 495
- Tethered Torpedo 473
- Trident II (D-5) Missile 490, 495
- Trident Submarine Program 402

○